SONY

DTF TAPE DRIVE

GY-8240UWD

DTF2 Tele-File

MAINTENANCE MANUAL

1st Edition

Serial No. 10001 and Higher

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

Attention-when the product is installed in Rack:

1. **Prevention against overloading of branch circuit**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. **Providing protective earth**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. **Internal air ambient temperature of the rack**
   When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. **Prevention against achieving hazardous condition due to uneven mechanical loading**
   When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for DTF TAPE DRIVE GY-8240UWD. This manual is intended for use by trained system and service engineers, and provides the information for maintenance, and the information for service such as replacement of boards.

Relative manual

Besides this maintenance manual, the following manual is available for the unit.

- **Operation Manual (Supplied with the unit)**
  This manual is necessary for application and operation of the unit.

Contents

This followings are summaries of the each section for understanding the manual.

Section 1. Service Overview
Describes information about removal of cabinet, main parts layout, instance of function of internal switches, connector input/output signals, replacement of part, the fixture and measuring equipment.

Section 2. Periodic Maintenance and Inspection
Describes periodic check and cleaning procedure.

Section 3. Replacement of Mechanical Parts
Describes replacement of the main mechanical parts.

Section 4. Tape Path Alignment
Describes adjustment prcedures of tape path system.

Section 5. Maintenance Mode
Describes the servo system, RF system adjustment and the maintenance mode and remedies for errors occurred.

Section 6. Service Setting Mode (LCD)
Describes the service setting mode to be performed from the display panel.

Section 7. Spare Parts
Describes the spare parts.

Section 8. Block Diagram and Frame Wiring
Describes the overall block diagram and frame wiring.

Trademarks

Trademarks and registered trademarks used in this manual are follows.

- Windows is a registered trademark of Microsoft Corporation.
- Ethernet is a registered trademark of Xerox Corporation.
- IBM PC/AT is registered trademark of International Business Machine, Inc.

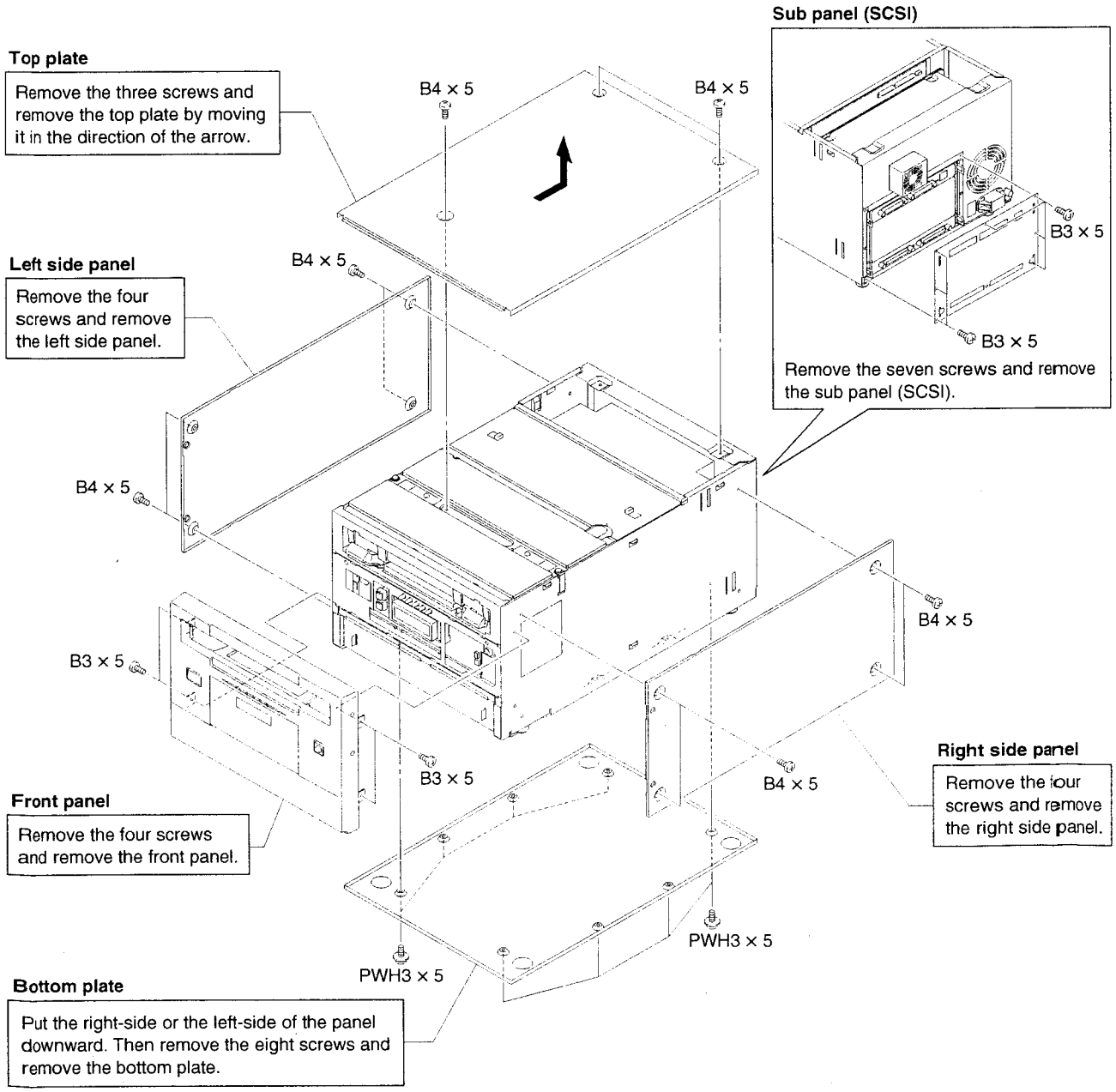
Section 1
Service Overview

1-1. Removal/Installation of Cabinet

CAUTION

Make sure that the power is turned OFF in the case of removal/installation.

For installation, perform in the reverse order of removal.


Top plate
Remove the three screws and remove the top plate by moving it in the direction of the arrow.
B4 × 5
B4 × 5
Sub panel (SCSI)
B3 × 5
B3 × 5
Remove the seven screws and remove the sub panel (SCSI).
Left side panel
Remove the four screws and remove the left side panel.
B4 × 5
B4 × 5
B3 × 5
B4 × 5
B3 × 5
Right side panel
Remove the four screws and remove the right side panel.
B4 × 5
Front panel
Remove the four screws and remove the front panel.
PWH3 × 5
PWH3 × 5
Bottom plate
Put the right-side or the left-side of the panel downward. Then remove the eight screws and remove the bottom plate.

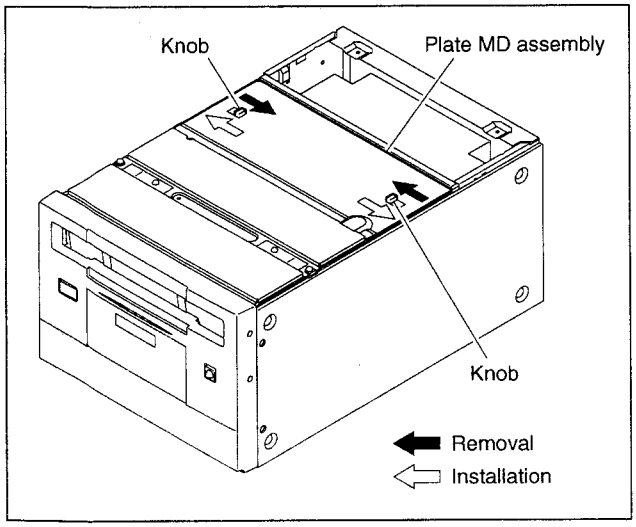
1-2. Cassette Compartment Removal/ Installation

Notes

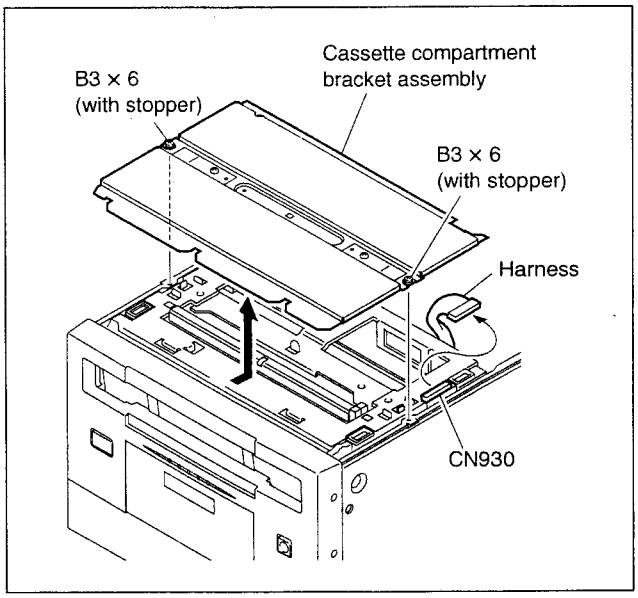
- Turn the power OFF and unplug the power cord before starting the removal/installation.
- The cassette compartment cannot be removed with the cassette inserted. Press the EJECT button with the power turned on to eject the cassette.
  If the cassette compartment does not move due to an electric trouble, take out the cassette manually. (Refer to "1-6. Taking Out the Cassette in Tape Slacking".)

Removal

1. Remove the top panel. (Refer to Section 1-1.)
2. Slide the knobs on the plate MD assembly each inwardly to remove the plate MD assembly.
   (Move the knobs outwardly to fix the plate MD assembly.)



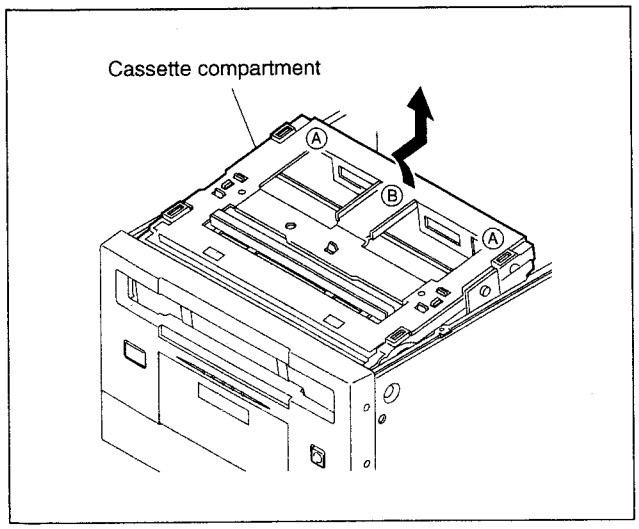
3. Loosen the two screws, then remove the cassette compartment bracket assembly.
4. Disconnect the harness from the connector (CN930) on the CL-29 board. Keep the harness out of the way of the removal.



5. Hold the cassette compartment at the portions Ⓐ and lift up the cassette compartment slightly (by 1 cm). When the four cassette compartment positioning legs come off from the four positioning holes on a mechanical deck, shift the cassette compartment backward (by 1 cm) to the position where the cassette lid can be completely seen when viewed from just above.
6. Hold the cassette compartment at the portions Ⓑ, then slowly raise the cassette compartment upward to remove it.

Notes

- Being careful not to contact the gear on the right of the cassette compartment with the chassis, slowly raise the cassette compartment while slightly sliding it back-and-forth.
- Never move the cassette compartment to the right and left. If unnecessary force is applied to right and left, the gear or part may come off.
- Place the cassette compartment with the cassette lid up or with cassette compartment positioning legs down.
  (If it is put with the cassette lid down, the flexible card wire/board might be damaged.)



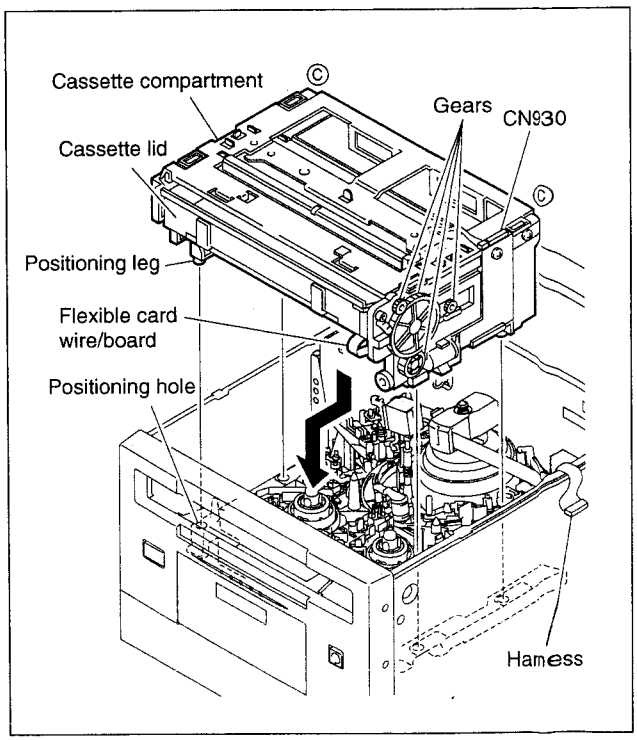
Installation

7. Place the cassette compartment into the unit in the direction as shown in the figure (with the cassette lid down).

Note

- Being careful not to contact the gear on the right of the cassette compartment with the chassis, slowly insert the cassette compartment into the unit while slightly sliding it back-and forth.
- Never move the cassette compartment to the right and left. If unnecessary force is applied to the right and left, the gear or part may come off.

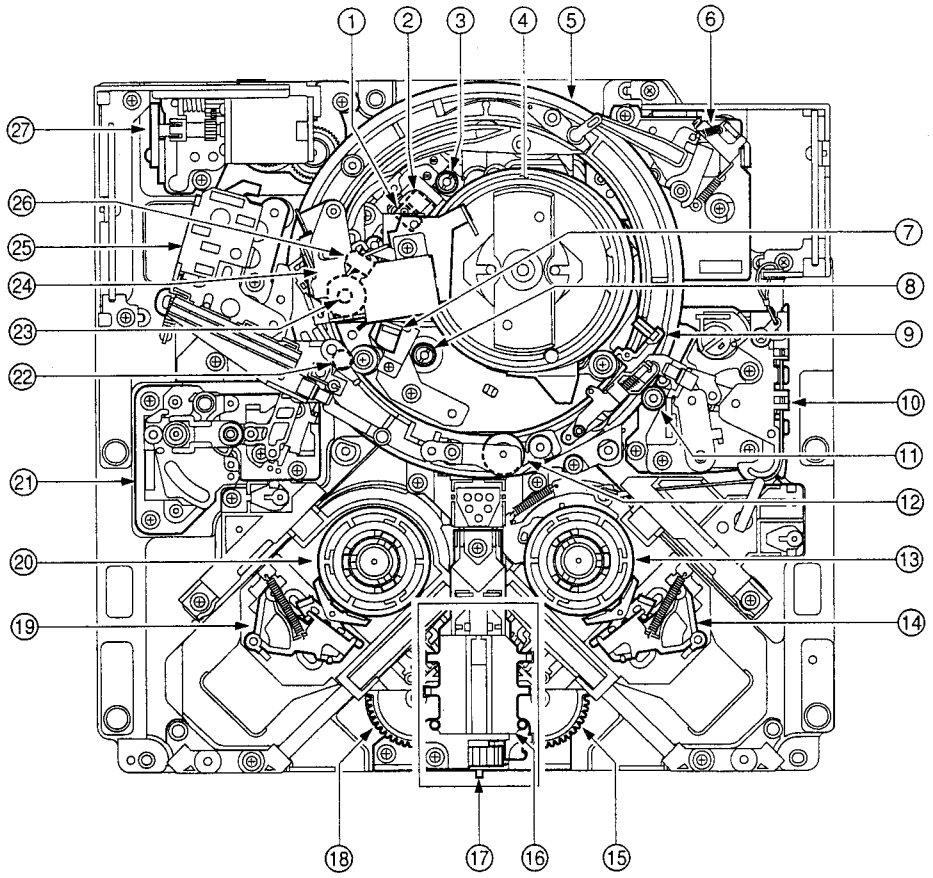
8. Press the portions Ⓒ of the cassette compartment as shown in the figure, and then fit the four positioning legs into the four positioning holes in the mechanical deck.



9. Connect the harness to the connector (CN930) on the CL-29 board.
10. Reattach the cassette compartment bracket assembly.
11. Reattach the plate MD assembly and the top plate.

1-3. Main Parts Layout

1-3-1. Main Mechanical Parts Layout



<Top view of mechanical deck>

INDEX

① CTL/TC head
② CTL/TC erase head
③ TG-3 tape guide
④ Head drum
⑤ Threading ring
⑥ T tension regulator assembly
⑦ Full erase head
⑧ TG-2 tape guide
⑨ CTL/TC head cleaner
⑩ T drawer assembly
⑪ TG-10 tape guide
⑫ Pinch roller
⑬ T reel table
⑭ T brake assembly
⑮ T drive gear
⑯ Motor holder assembly
⑰ Worm assembly
⑱ S drive gear
⑲ S brake assembly
⑳ S reel table
㉑ S tension regulator arm
㉒ TG-0 tape guide
㉓ Capstan shaft
㉔ Cleaning roller block
㉕ Pinch press block
㉖ CONFI head
㉗ Threading gear block

1-3-2. Printed Circuit Boards Layouts

INDEX

CCM-15 ..... ①
CCM-33 ..... ②
CL-29 ..... ③
CT-205 ..... ④

DPR-160 ..... ⑤
DSP-90 ..... ⑥

FM-75 ..... ⑦

HN-258 ..... ⑧
HN-268 ..... ⑨

IF-780 ..... ⑩

LP-81 ..... ⑪

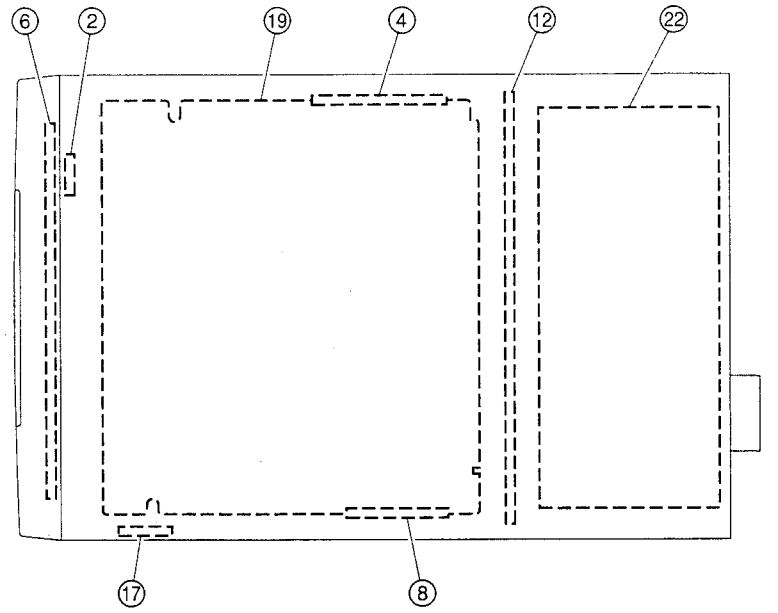
MB-887 ..... ⑫

PC-70 ..... ⑬
PTC-54 ..... ⑭
PTC-99 ..... ⑮

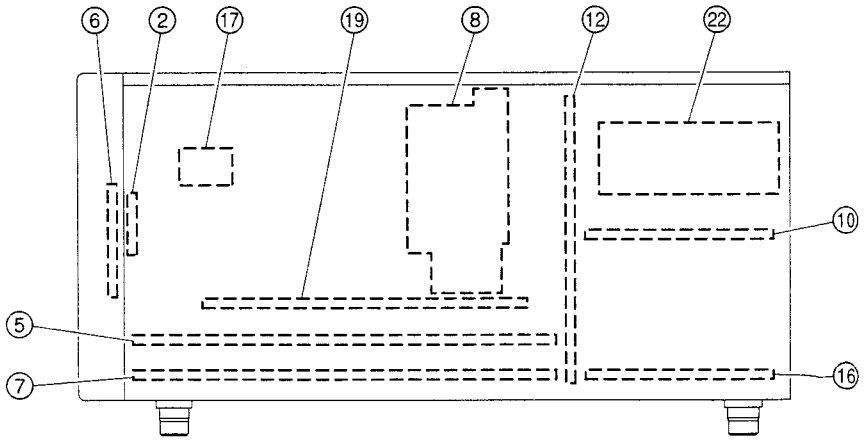
SCS-28 ..... ⑯
SE-533 ..... ⑰
SE-606 ..... ⑱
SV-205 ..... ⑲

TR-119 ..... ⑳
TR-120 ..... ㉑

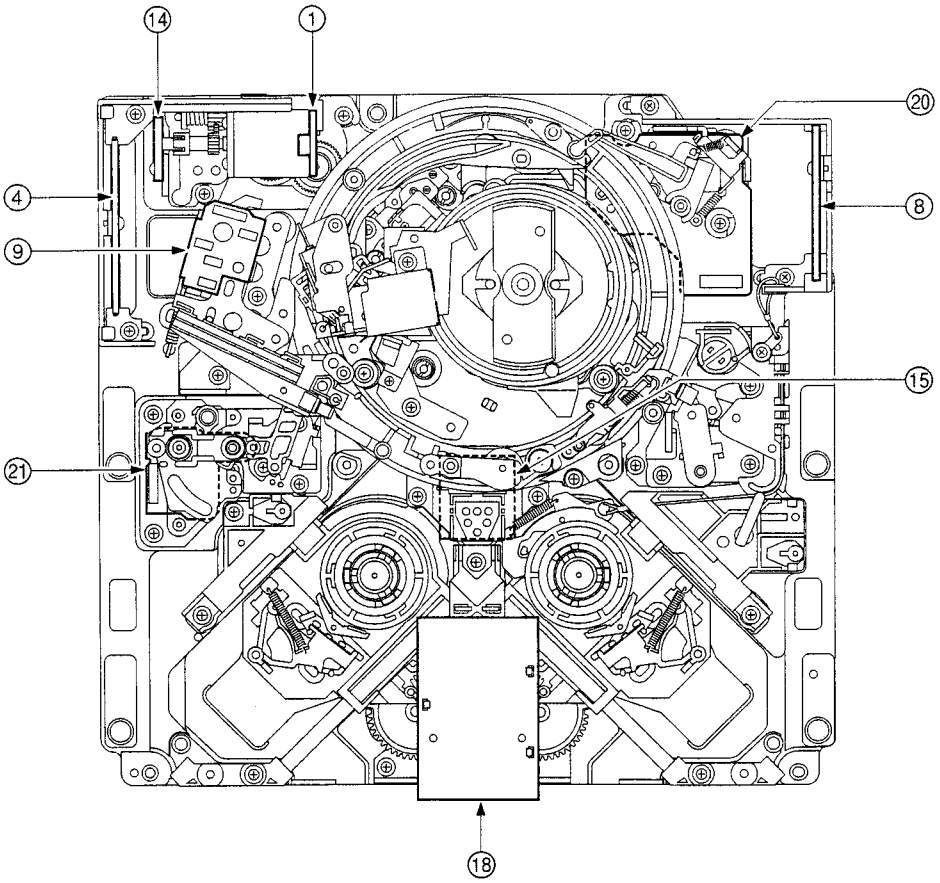
Switching regulator ..... ㉒



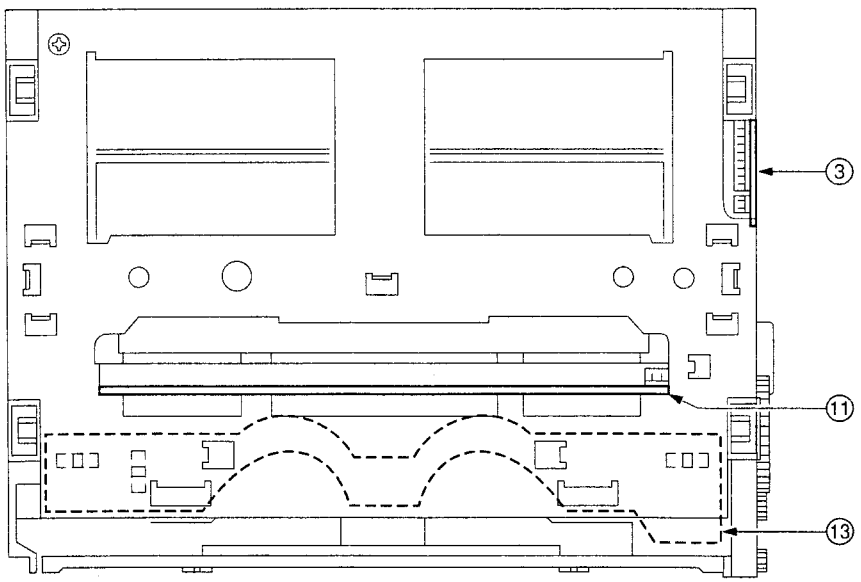
<Upper-side view>



<Right-side view>

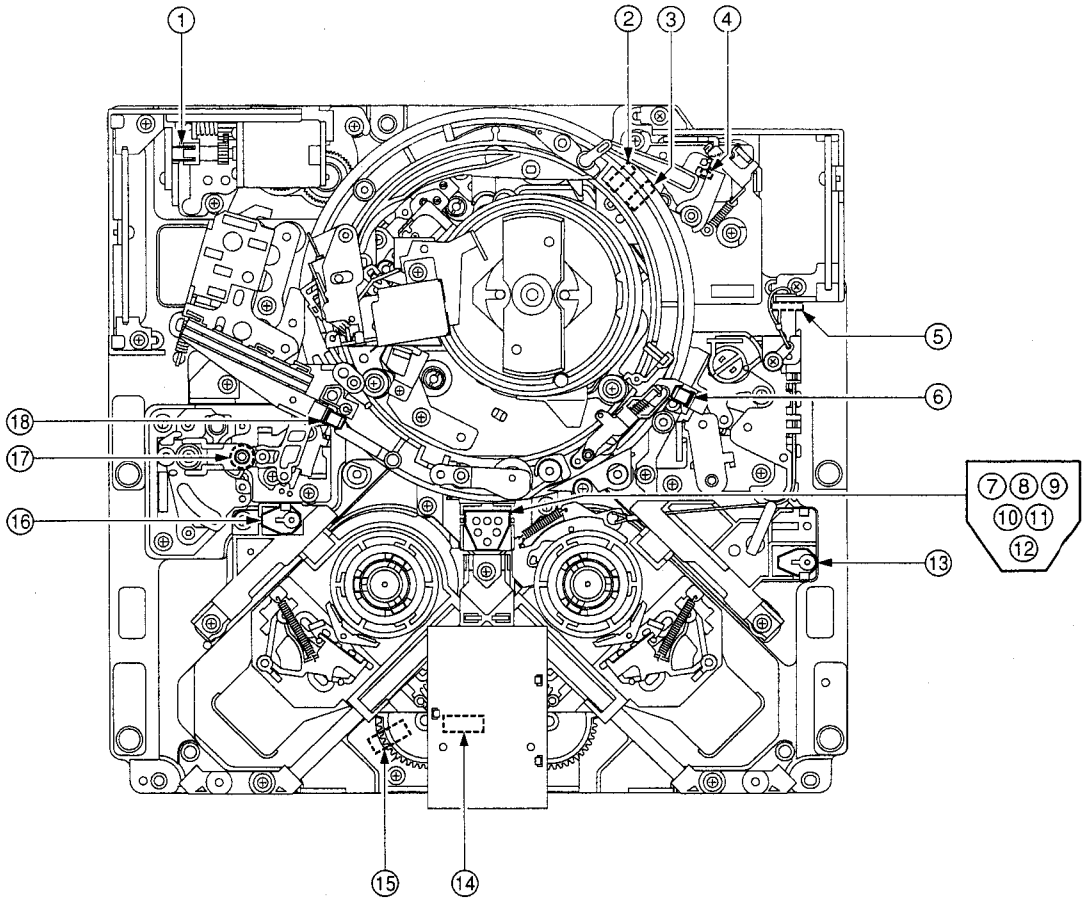


<Top view of mechanical deck>

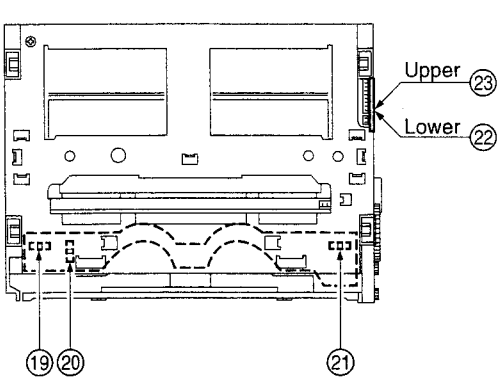


<Top view of cassette compartment>

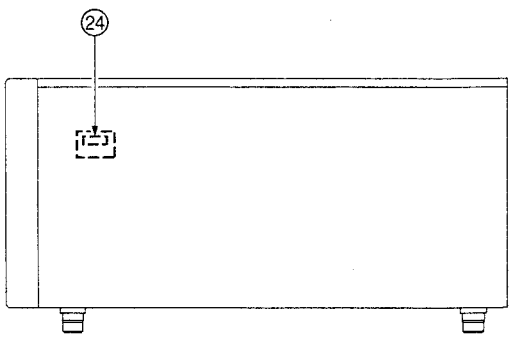
1-3-3. Function Descriptions and Sensors Layouts



<Top view of mechanical deck>



<Top view of cassette compartment>



<Right-side view>

① **Threading motor FG sensor**
This sensor detects the rotation speed of the threading motor. The output signal of this sensor enters the threading motor servo circuit, and controls the threading/unthreading speed to protect the tape during threading and unthreading operation.

② **Unthreading-end sensor**
③ **Threading-end sensor**
These sensors detect whether the threading ring reaches the threading-end or unthreading-end position.

④ **T tension regulator arm sensor**
This sensor detects the position of a T tension regulator arm. During recording and playback, the output signal of this sensor enters the T reel motor servo circuit, and controls the reel torque to keep a constant T tape tension.

⑤ **Condensation sensor**
This sensor detects whether the dew condensation occurs in the unit.

⑥ **Tape top sensor**
This sensor detects the top of the tape, and in addition detects the tape end of the tape that runs in the rewind direction.

⑦ **Cassette ID-1 sensor**
⑧ **Cassette ID-2 sensor**
⑨ **Cassette ID-3 sensor**
⑩ **Cassette ID-4 sensor**
⑪ **Cassette ID-5 sensor**
⑫ **Cassette ID-6 sensor**
When the cassette is inserted into the unit, this sensor distinguishs the type of the cassette.

⑬ **L Cassette REC INHIBIT sensor**
This is a REC inhibit plug detector switch for the large cassette.

⑭ **Reel S position sensor**
⑮ **Reel L position sensor**
These sensors detect whether the reel table moves to the correct position according to the size of the inserted cassette.

⑯ **S cassette REC INHIBIT sensor**
This sensor detects the position of an S tension regulator arm. During recording and playback, the output signal of this sensor enters the S reel motor servo circuit, and controls the reel torque to keep a constant S tape tension.

⑰ **S tension regulator arm sensor**
During recording and playback, this sensor detects the tension arm position and controls the reel torque to keep a constant tape tension.

⑱ **Tape end sensor**
This sensor detects the end of the tape that runs in the forward direction.

⑲ **Cassette-in sensor (L)**
This sensor detects whether a cassette is being inserted.

⑳ **Cassette L/S size sensor**
This sensor detects whether the inserted cassette tape is an L size or S size.

㉑ **Cassette-in sensor (R)**
This sensor detects whether a cassette is being inserted.

㉒ **Cassette-down (2) sensor**
㉓ **Cassette-down (1) sensor**
These sensors detect the movement (position) of a cassette compartment by the combination of the detection state of the two sensors and a cassette-in sensor.

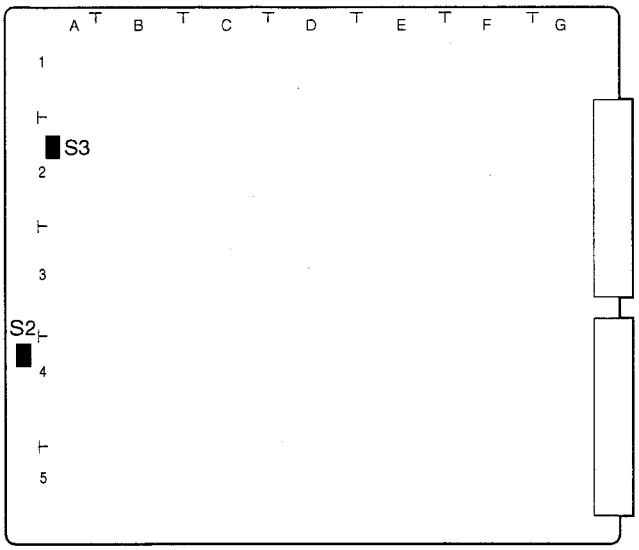
㉔ **Cassette-lid sensor**
This sensor detects the cassette-lid position (open/closed), by which it is confirmed whether a cassette is in the cassette insert opening or not.

1-4. Internal Switch Setting

Note

Never change the setting of the factory use switches.

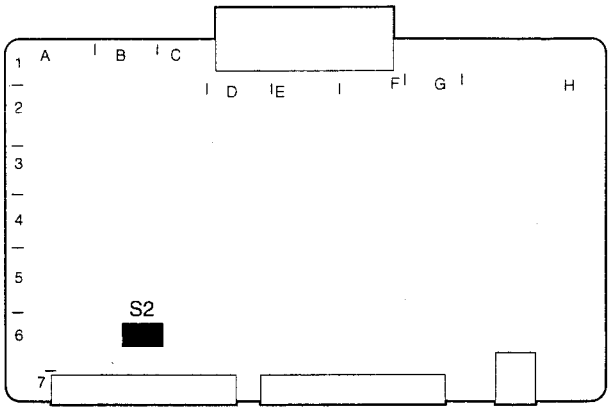
FM-75 Board



FM-75 board (A side)

Ref No.	Bit	Contents	Factory setting
S2	1 to 8	Factory use	OFF
S3	1 to 8	Factory use	OFF

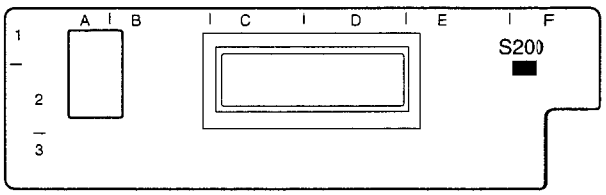
IF-780 Board



IF-780 board (A side)

Ref No.	Bit	Contents	Factory setting
S2	1 to 8	Factory use	OFF

DSP-90 Board

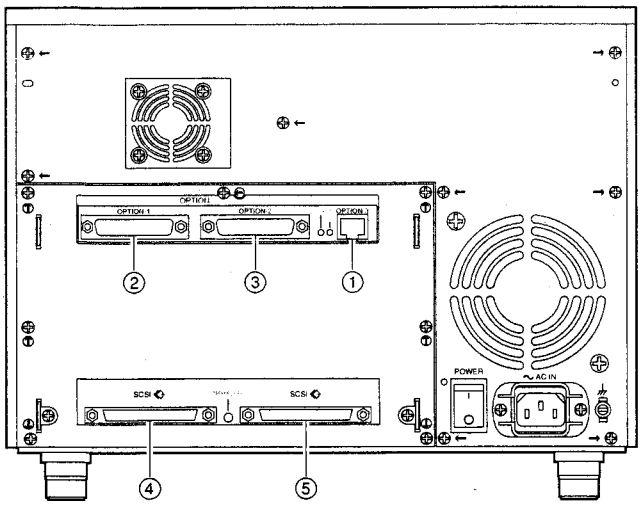


DSP-90 board (A side)

Ref No.	Bit	Contents	Factory setting
S200	1 to 8	Factory use	OFF

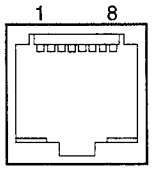
1-5. Connector/Cable Information

Rear panel



① OPTION 3: 10 BASE-T (MDI-8pin)

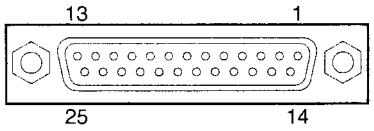
<External View>



Pin No.	I/O	Signal
1	O	TXD (+)
2	O	TXD (–)
3	I	RXD (+)
4	–	NC
5	–	NC
6	I	RXD (–)
7	–	NC
8	–	NC

② OPTION 1 : RS-232C (25-pin female)
③ OPTION 2 : RS-232C (25-pin female)

< External View >

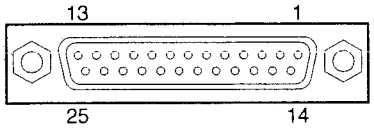


Pin No.	I/O	Signal
1	–	GND
2	O	TXD
3	I	RXD
4	O	RTS
5	I	CTS
6	I	DSR
7	–	GND
8	I	DCD
9	–	NC
10	–	NC
11	–	NC
12	–	NC
13	–	NC
14	–	NC
15	–	NC
16	–	NC
17	–	NC
18	–	NC
19	–	NC
20	O	DTR
21	–	NC
22	–	NC
23	–	NC
24	–	NC
25	–	NC

To mount the OPTION-1 and OPTION-2 terminals, use the screw M2.6.

Example of connector

< External View >



GY-8240 ←

→ PC

Pin No.	I/O	Signal	Direction
1	–	GND	
2	O	TXD	GY → PC
3	I	RXD	GY ← PC
4	O	RTS	GY → PC
5	I	CTS	GY ← PC
6	I	DSR	GY ← PC
7	–	GND	
8	I	DCD	GY ← PC
9	–	NC	
10	–	NC	
11	–	NC	
12	–	NC	
13	–	NC	
14	–	NC	
15	–	NC	
16	–	NC	
17	–	NC	
18	–	NC	
19	–	NC	
20	O	DTR	GY → PC
21	–	NC	
22	–	NC	
23	–	NC	
24	–	NC	
25	–	NC	

PC side : RS-232C

25-pin	9-pin	Signal
1		GND
2	(3)	TXD
3	(2)	RXD
4	(7)	RTS
5	(8)	CTS
6	(6)	DSR
7	(5)	GND
8	(1)	DCD
9		NC
10		NC
11		NC
12		NC
13		NC
14		NC
15		NC
16		NC
17		NC
18		NC
19		NC
20	(4)	DTR
21		NC
22		NC
23		NC
24		NC
25		NC

( ) : Pin numbers is the case of 9-PIN

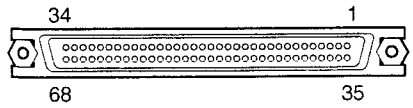
Information

Cable Connection

When connecting PC and GY-8240, connect the each connector refering to the above information.

④⑤ SCSI (68-pin female)

< External View >

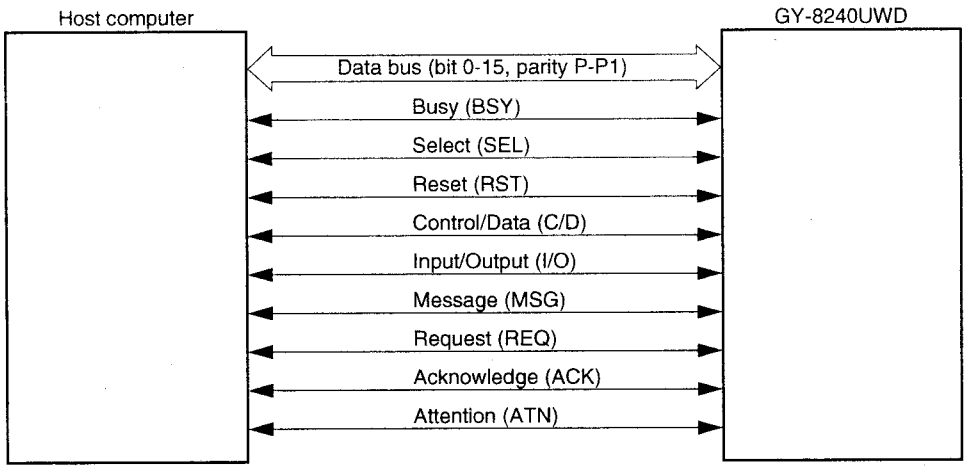


Pin No.	I/O	Signal
1	I/O	DB12 (+)
2	I/O	DB13 (+)
3	I/O	DB14 (+)
4	I/O	DB15 (+)
5	I/O	DBP1 (+)
6	—	GND
7	I/O	DB0 (+)
8	I/O	DB1 (+)
9	I/O	DB2 (+)
10	I/O	DB3 (+)
11	I/O	DB4 (+)
12	I/O	DB5 (+)
13	I/O	DB6 (+)
14	I/O	DB7 (+)
15	I/O	DBP (+)
16	I	DIFFSENS
17	I/O	TERMPWR
18	I/O	TERMPWR
19	I/O	RESERVED
20	I	ATN (+)
21	—	GND
22	I/O	BSY (+)
23	I	ACK (+)
24	I/O	RST (+)
25	O	MSG (+)
26	I/O	SEL (+)
27	O	C/D (+)
28	O	REQ (+)
29	O	I/O (+)
30	—	GND
31	I/O	DB8 (+)
32	I/O	DB9 (+)
33	I/O	DB10 (+)
34	I/O	DB11 (+)

Pin No.	I/O	Signal
35	I/O	DB12 (–)
36	I/O	DB13 (–)
37	I/O	DB14 (–)
38	I/O	DB15 (–)
39	I/O	DBP1 (–)
40	—	GND
41	I/O	DB0 (–)
42	I/O	DB1 (–)
43	I/O	DB2 (–)
44	I/O	DB3 (–)
45	I/O	DB4 (–)
46	I/O	DB5 (–)
47	I/O	DB6 (–)
48	I/O	DB7 (–)
49	I/O	DBP (–)
50	—	GND
51	I/O	TERMPWR
52	I/O	TERMPWR
53	I/O	RESERVED
54	I	ATN (–)
55	—	GND
56	I/O	BSY (–)
57	I	ACK (–)
58	I/O	RST (–)
59	O	MSG (–)
60	I/O	SEL (–)
61	O	C/D (–)
62	O	REQ (–)
63	O	I/O (–)
64	—	GND
65	I/O	DB8 (–)
66	I/O	DB9 (–)
67	I/O	DB10 (–)
68	I/O	DB11 (–)

To mount the SCS1 terminal, use the screw 2-56.

SCSI BUS SIGNAL LINES



The bus driver of this unit is differential type.
The data bus supports 16 bits.

SIGNAL LINE INFORMATION

BSY	Indicates that the SCSI bus is being used.
SEL	Initiator selects the target in selection phase and the target selects the initiator in reselection phase.
RST	Requires to reset all the devices connected to the SCSI bus. However, this signal is not turned on in this unit.
C/D	Identifies information. (1: Control information* / 0: Data information.)
I/O	Determines the direction of transmission. (1: Initiator → Target / 0: Target → Initiator)
MSG	The target drives this signal. (1: Message information / 0: Command status data information.)
REQ	The target drives this signal. This signal is used for handshake of data transmission.
ACK	The initiator drives this signal. This signal is used for handshake of data transmission.
ATN	The initiator drives this signal. This signal indicates that a message is required by the initiator.

* : The control information is the command, status or message information.

1-6. Taking Out the Cassette in Tape Slacking

Note

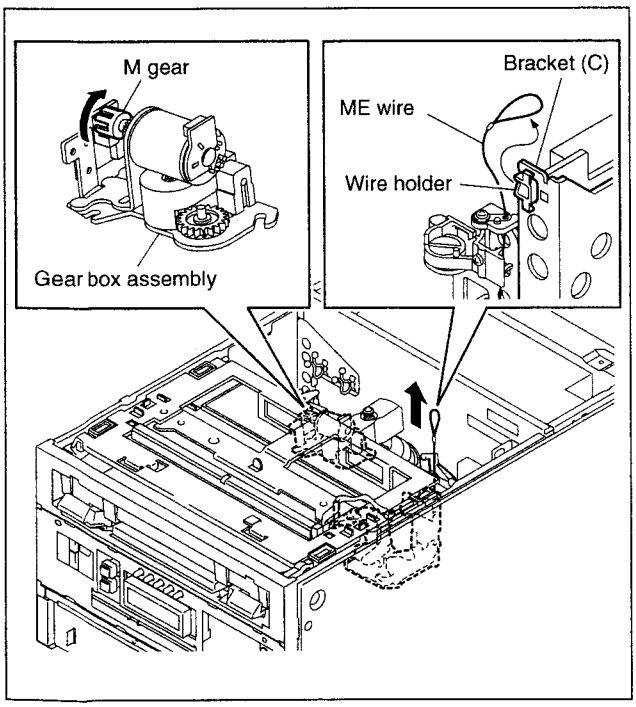
Turn the power OFF and unplug the power cord before starting the working.

When the tape is slacked in this unit, follow the steps below to take out the cassette.

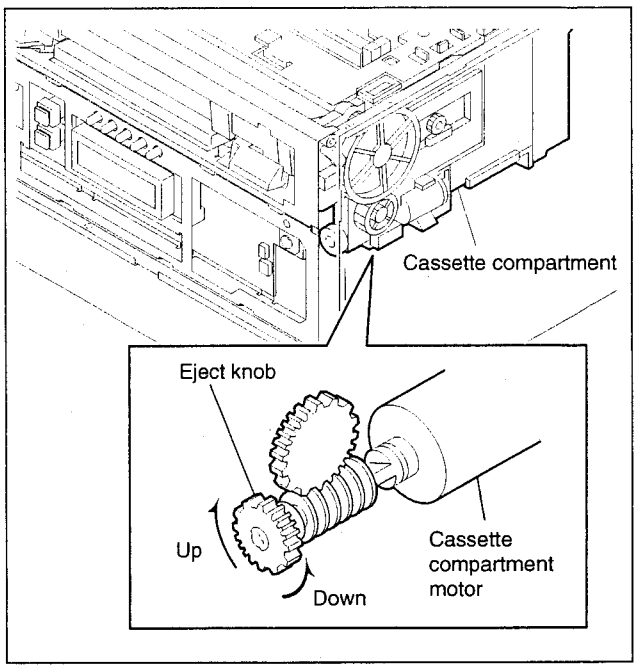
Note

Being careful not to damage the tape, take out the cassette tape with care.

1. Turn the power OFF and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD assembly. (Refer to Section 1-2.)
4. Remove the front panel. (Refer to Section 1-1.)
5. Remove the tip of the ME wire from the wire holder of the attachment fitting (C).
6. Rotate the M gear of the gear box assembly in the direction of the arrow with the fingers by about a half turn to slack off the tape.
7. By pulling up the tip of the ME wire, wind the tape into the cassette.



8. Repeat the steps 6 and 7 until the unit is put into the unthreading-end state and the tape is completely taken-up.
9. Turn the eject knob of the cassette compartment motor shown in the figure clockwise until the cassette is ejected completely.

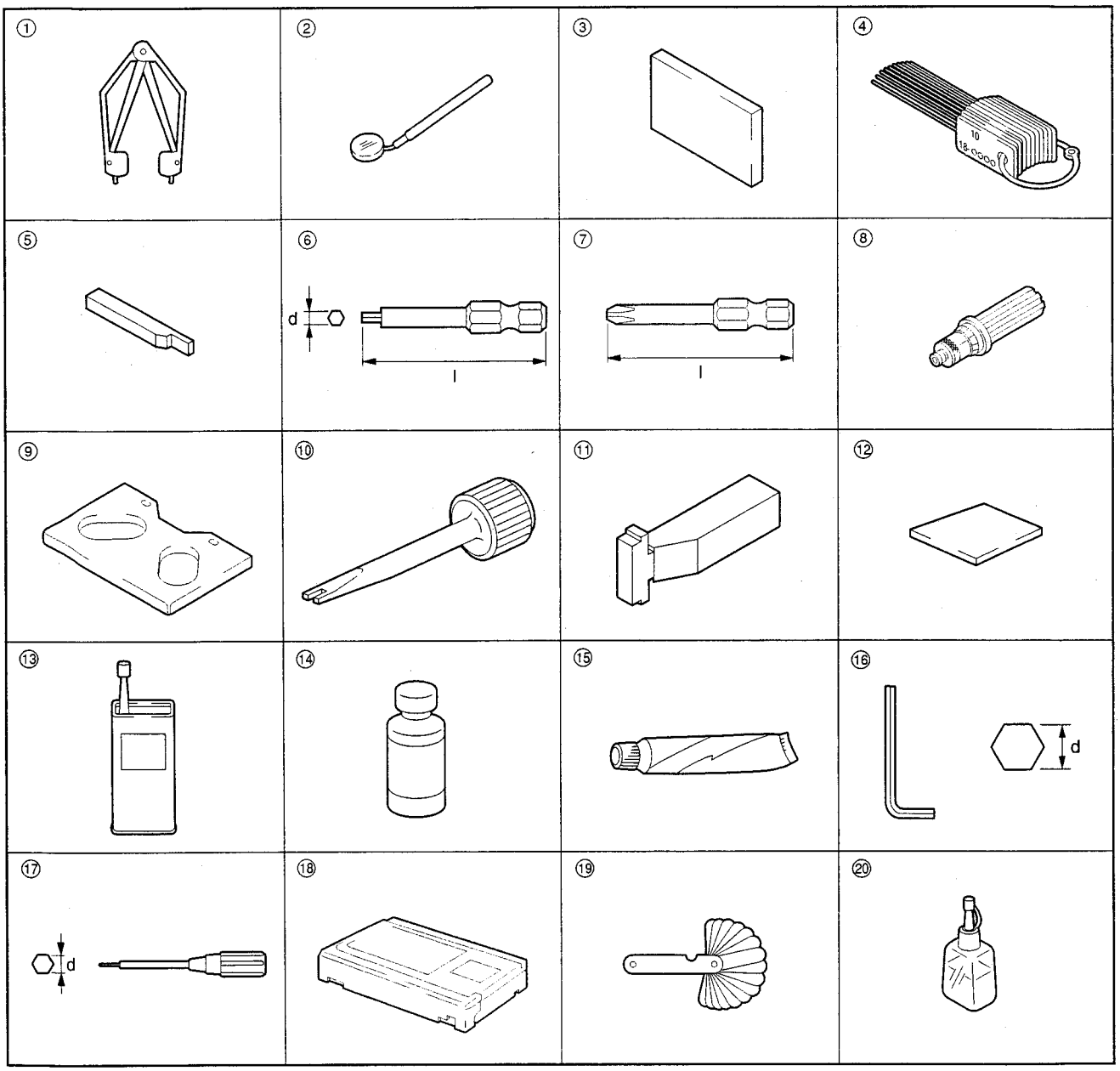


10. Hang the tip of the ME wire on the wire holder of the bracket (C) and fix it.

1-7. Fixtures and Measuring Equipment for Adjustment

1-7-1. Fixtures

Fig. No.	Part No.	Description	Inscription No.	For use
①	J-6035-070-A	Extraction Tool (for PLCC socket)	————	Extraction of IC (PLCC type)
②	J-6080-029-A	Small Dental Mirror (Round type ø12)	————	Cassette pillar height adjustment
③	J-6086-570-A	Reference Flat Plate	SL-657	CTL/TC head zenith adjustment
④	J-6152-450-A	Wire Clearance Check Gauge Set	————	Clearance check
⑤	J-6190-800-A	Tension Regulator Slantness Check Tool	BW-080	Slant guide slantness adjustment
⑥	J-6251-090-A	Torque screwdriver's hexagonal bit (d = 2.5 mm, l = 120 mm)	————	Tightening screws to fix a drum assembly and upper drum assembly
⑦	J-6323-420-A	Torque screwdriver's bit (+2 mm, l = 75 mm)	————	Tightening screws to fix a brush/slip ring assembly
	J-6323-430-A	Torque screwdriver's bit (+3 mm, l = 90 mm)	————	Tightening screws to fix a reel motor assembly or a ring roller
⑧	J-6252-510-A	Torque screwdriver (6 kg•cm)	JB-5251	Tightening screws
	J-6252-520-A	Torque screwdriver (12 kg•cm)	JB-5252	Tightening screws
⑨	J-6320-880-A	Cassette Reference Plate (L)	MW-088	Reel table height adjustment, Reel motor shaft slantness adjustment
⑩	J-6322-610-A	Tape Guide Adjustment Driver	MW-261	Tape path alignment
⑪	J-6329-350-A	Reel Table Height Gauge	MW-935	Reel table height adjustment
⑫	3-184-527-01	Cleaning Cloth (15 cm × 15 cm)	————	Cleaning
⑬	7-432-114-11	Locking Compound (200 g)	————	Inhibits loosening of screws
⑭	7-661-018-18	Diamond Oil NT-68 (50 ml)	————	
⑮	7-651-000-10	Grease (SGL-601) (20 g)	————	
⑯	7-700-736-05	L-shaped Hexagonal Wrench (d = 1.5 mm)	————	
⑰	7-700-766-04	Hexagonal Wrench Driver (d = 2.5 mm)	————	
⑱	8-960-074-31	Alignment Tape, YR5-1A	————	RF alignments
	8-960-074-32	Alignment Tape, YR2-1A	————	Tracking adjustments
⑲	9-911-053-00	Thickness Gauge	————	Clearance check
⑳	9-919-573-01	Cleaning Liquid	————	Cleaning


①
②
③
④
10
18
⑤
⑥
d
l
⑦
l
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
d
⑰
d
⑱
⑲
⑳

1-7-2. Measuring Equipment

It is recommended to use the measuring equipments listed below or the equivalents.
Each equipment is available as a standard product.

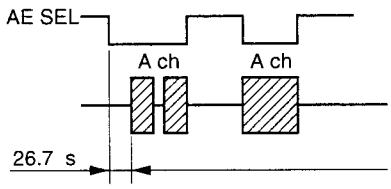
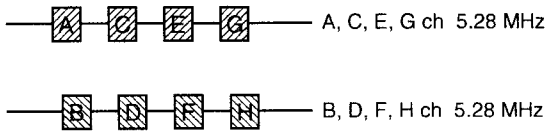
Equipment	Model Name	Remarks
Spectrum Analyzer	ADVANTEST R3261A	with external trigger function bandwidth: more than 100 MHz
Oscilloscope	TEKTRONIX 2465B	
Digital Voltmeter	ADVANTEST TR6845	

1-7-3. Alignment Tapes

(1) YR2-1A (for tracking adjustment)

Part No. : 8-960-074-32

Contents

ID	Recording signal	Use
0		• Tracking Adjustment • CTL Position Adjustment • PG Adjustment • CTL/TC Head Height Adjustment • CTL/TC Azimuth Adjustment
72000		
		• REC Head Height Adjustment
90000		

(2) YR5-1A (for RF alignment)

Part No. : 8-960-074-31

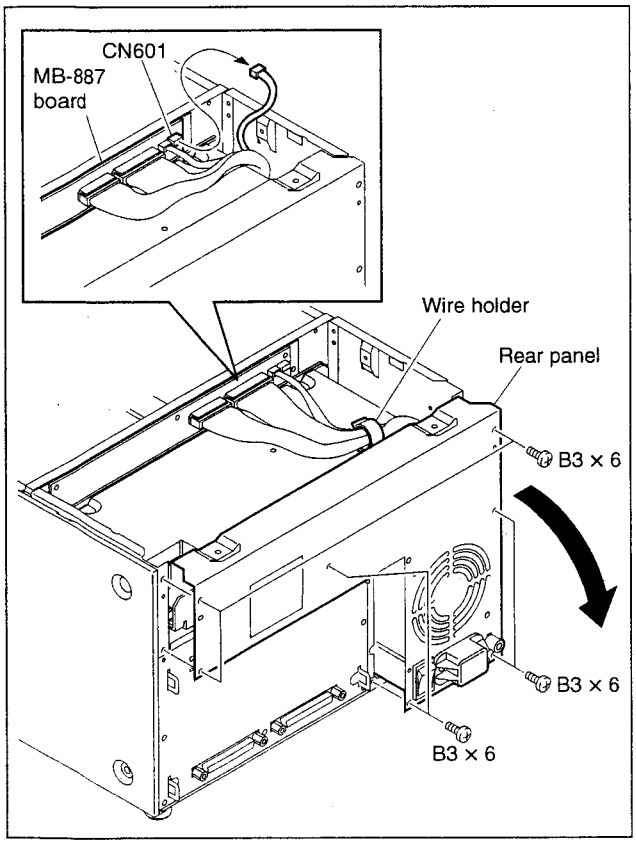
Contents

ID	CTL	Recording signal (RF)	Use
0		Test signal Randomize data	• RF Alignment/Check
90000			

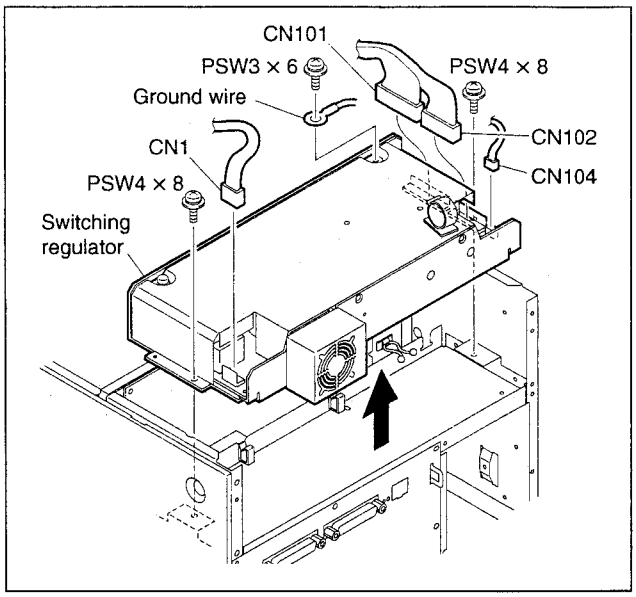
1-8. Power Block

1-8-1. Switching Regulator Replacement

1. Turn the power OFF and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Disconnect the connector CN601 of the MB-887 board.
4. Release the harnesses from the wire holder.
5. Remove the eight screws (B3 × 5), then open the rear panel in the arrow direction.



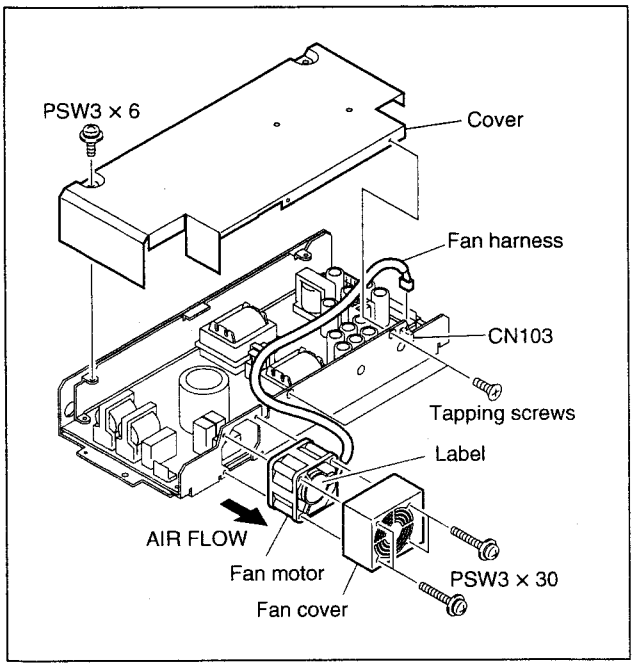
6. Disconnect the four connectors (CN1, CN101, CN102 and CN104).
7. Remove the screw (PSW3 × 6) to disconnect the ground wire from the switching regulator.
8. Remove the two screws (PSW4 × 8).
9. Raise the switching regulator gently upward.



10. Install a switching regulator in the reverse order of removal.

1-8-2. Fan Motor (Power Supply) Replacement

1. Turn the power OFF and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Open the rear panel. (Refer to Section 1-8-1.)
4. Remove the switching regulator. (Refer to Section 1-8-1.)
5. Remove the three screws (PSW3 × 6: 1 pc, tapping screws: 2 pcs) to remove the cover.
6. Disconnect the fan harness from the connector CN103 of the switching regulator.
7. By removing the four screws (PSW3 × 30), remove the fan cover and fan motor.
8. Install a new fan motor positioning as shown in the figure and fix it together with the fan cover with the four screws.
   Tightening torque: 0.6 N•m {6 kgf•cm}
9. Route the fan harness as shown in the figure and connect it to the connector CN103 of the switching regulator.
10. Fix the cover with the three mounting screws.



11. Install the fan motor in the reverse order of removal.

1-8-3. Voltage and Power Requirements

WARNING

Be sure to operate the unit within the range of following power boltage.

Power voltage:	AC100 to 240 V ±10 %
Power frequency:	50 Hz or 60 Hz
Power consumption:	150 V
Rush current:	Power voltage 100 V IN; 15 A
	Power voltage 240 V IN; 30 A

This unit's power line has a switching regulator with the power factor 98 %.

Note

AC power supply is repuired a capacity which is commensurate with rush current.
If the capacity of the AC power supply is not enough, the breaker of AC power of a supply side may operate or this unit may not operate normally.

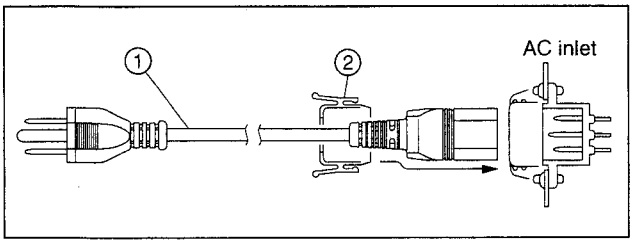
1-8-4. Power Cord

WARNING

To avoid a fire or an electric shock, use the specified power cord only when connecting.
Never use a injured power cord.

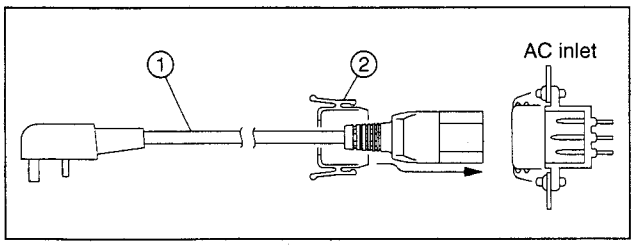
For customers in the U.S.A. and Canada:

① Power cord 125 V 10 A (2.4 m): ⚠1-557-377-11
② Plug holder (Brown): 3-613-640-01



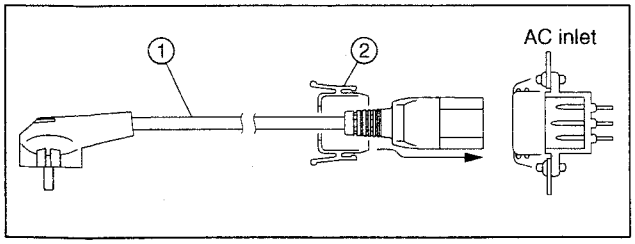
For customers in the United Kingdom:

① Power cord 250 V 10 A (2.4 m): ⚠1-782-165-11
② Plug holder (Brown): 3-613-640-01



For customers in European countries except the United Kingdom:

① Power cord 250 V 10 A (2.4 m): ⚠1-782-164-11
② Plug holder (Brown): 3-613-640-01



If the unit is used in the area except above, please contact your local Sony Sales Office/Service Center.

1-9. Replacement of the boards

1-9-1. Index

Section	Board Name	Location No.*1	Adjustment Items after Replacement
1-9-2	DPR-160	⑤	Refer to Section "5-14-3, Electrical Alignment after Replacement."
	FM-75	⑦	Refer to Section "5-14-3, Electrical Alignment after Replacement."
1-9-3	IF-780	⑩	Refer to Section "5-14-3, Electrical Alignment after Replacement."
	SCS-28	⑯	Adjustment does not need after the board replacement.
1-9-4	CCM-33	②	Adjustment does not need after the board replacement.
1-9-5	DSP-90	⑥	Refer to Section "5-14-3, Electrical Alignment after Replacement."
1-9-6	HN-258	⑧	Adjustment does not need after the board replacement.
1-9-7	CT-205	④	Adjustment does not need after the board replacement.
1-9-8	SV-205	⑲	Refer to Section "5-14-3, Electrical Alignment after Replacement."

*1: Refer to Section 1-3-2.

Note

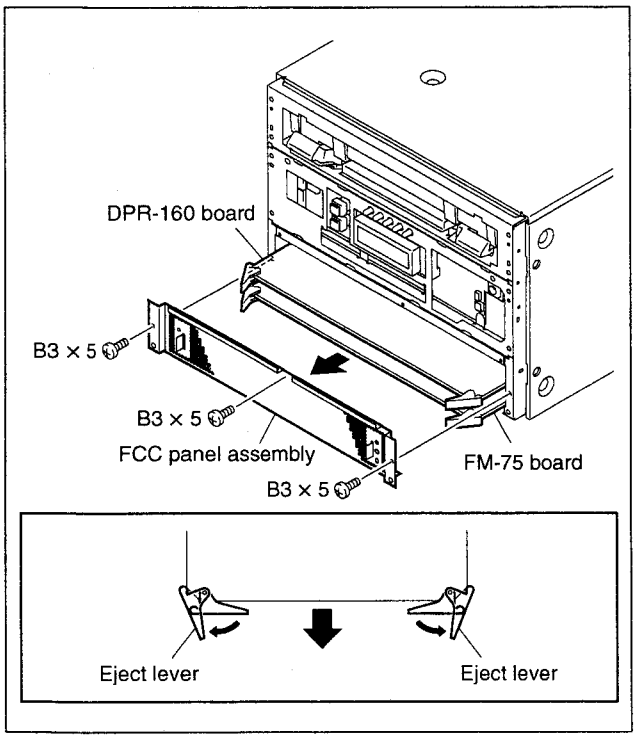
On the SV-205 and IF-780 boards, ROMs are mounted. When replacing these boards, check the ROM version by the following procedure and update the firmware if necessary.

How to check the ROM version

1. After entering "DIAG" from the PC connected to this unit, hit the enter key to activate the self-diagnosis mode.
2. Enter "3" as a command number and hit the enter key.
   Subsequently each ROM version is displayed on the terminal display of the PC.
3. To exit from the self-diagnosis mode, enter "QUIT" from the PC and hit the enter key.

1-9-2. DPR-160 and FM-75 Boards Replacement

1. Turn the power OFF and remove the power cord.
2. Remove the front panel. (Refer to Section 1-1.)
3. Remove the three screws to remove the FCC panel assembly.
4. Raise the eject levers disposed at both edges on the board to be removed in the arrow direction.
5. Hold the eject levers and slowly pull the board off forwardly.



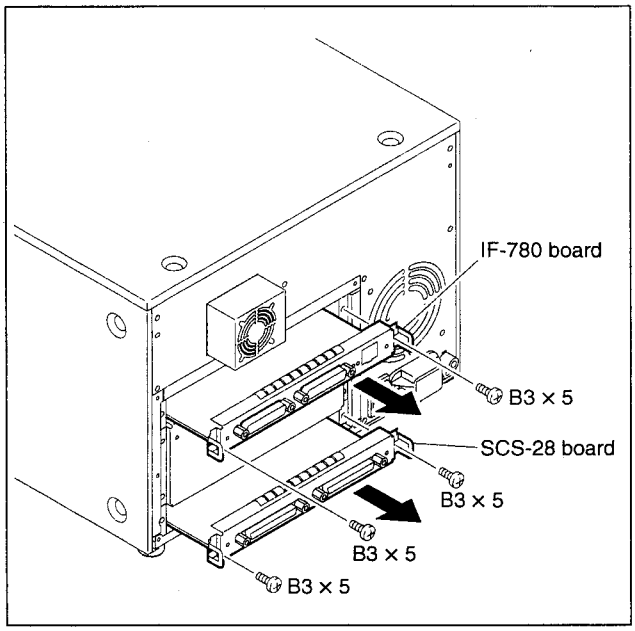
For installation, perform in the reverse order of the removal procedures.

Note

After inserting the board, press in the two eject levers simultaneously and connect firmly the board to the connector of the motherboard (MB-887 board).

1-9-3. IF-780 and SCS-28 Boards Replacement

1. Turn the power OFF and remove the power cord.
2. Remove the sub panel (SCSI). (Refer to Section 1-1.)
3. Remove the two screws to remove the IF-780 board or SCS-28 board.



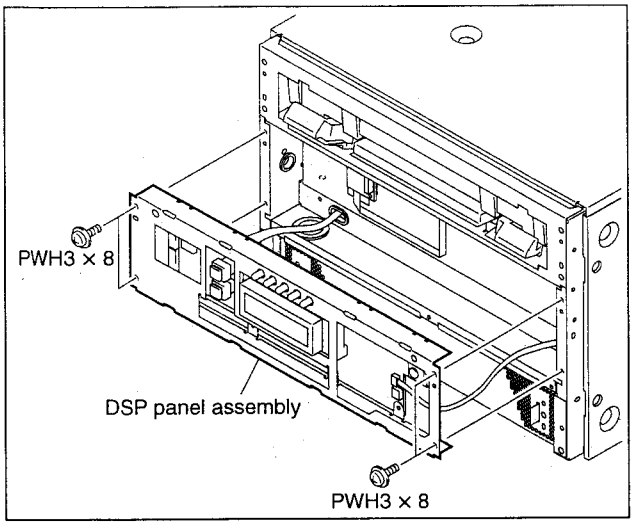
For installation, perform in the reverse order of the removal procedures.

Note

After inserting the board, press in the both edges of the board panel simultaneously and connect firmly the board to the connector of the motherboard (MB-887 board).

1-9-4. CCM-33 Board Replacement

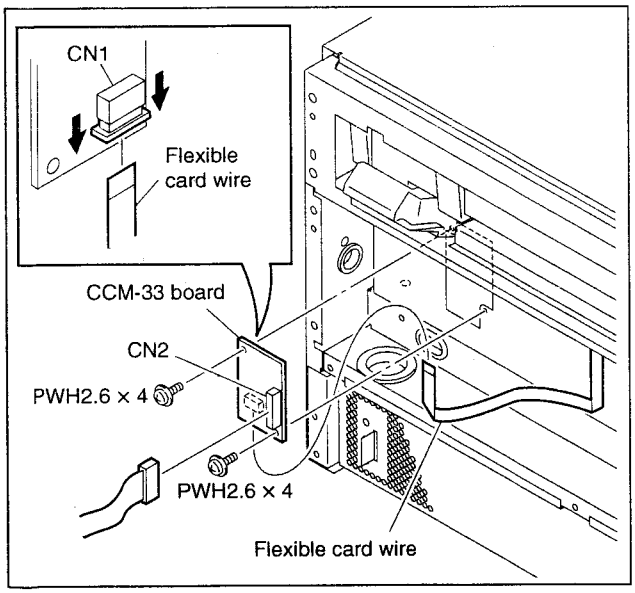
1. Turn the power OFF and remove the power cord.
2. Remove the front panel. (Refer to Section 1-1.)
3. Remove the four screws (PWH3 × 5) to remove the DSP panel assembly.



4. Disconnect the connector CN2 of the CCM-33 board.
5. Remove the two screws (PWH2.6 × 4) to remove the CCM-33 board.
6. Disconnect the flexible card wire from the connector CN1 of the CCM-33 board.

Note

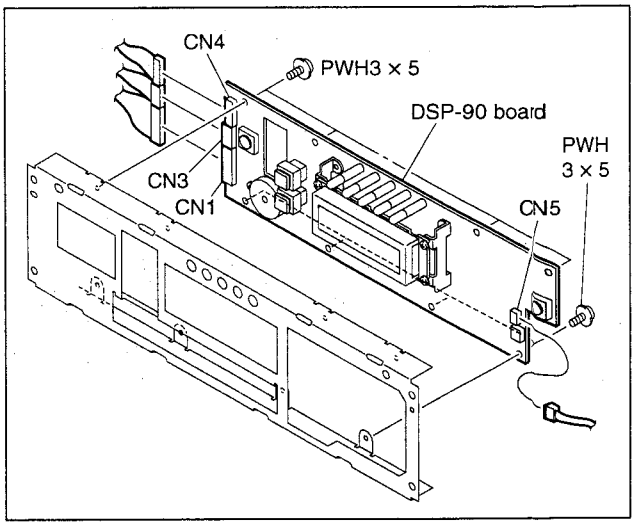
Use extreme care to handle the flexible card wire. As it is frail at being bent, improper handling may cause its life to shorten.



For installation, perform in the reverse order of the removal procedures.

1-9-5. DSP-90 Board Replacement

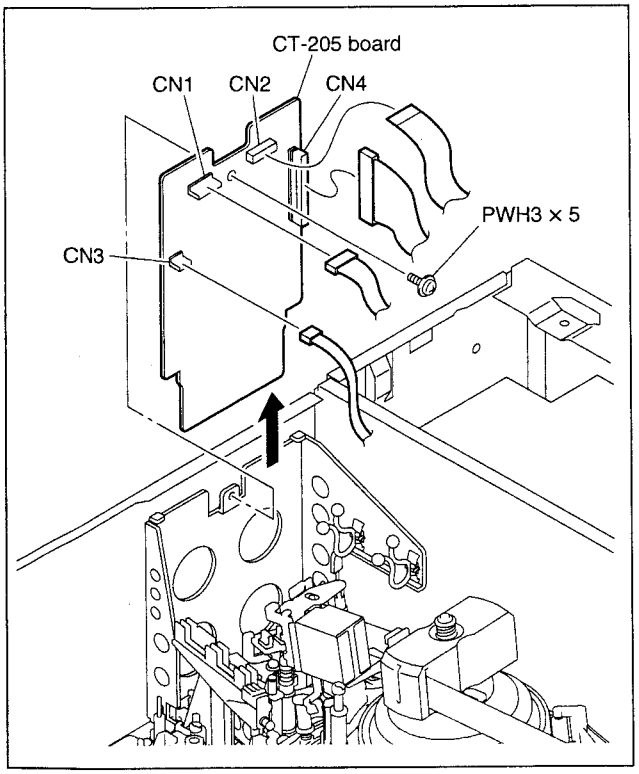
1. Turn the power OFF and remove the power cord.
2. Remove the front panel. (Refer to Section 1-1.)
3. Remove the DSP panel assembly. (Refer to Section 1-9-4.)
4. Disconnect the four connectors (CN1, CN3, CN4 and CN5) of the DSP-90 board.
5. Remove the eight screws (PWH3 × 5) to remove the DSP-90 board.



For installation, perform in the reverse order of the removal procedures.

1-9-6. CT-205 Board Replacement

1. Turn the power OFF and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD assembly. (Refer to Section 1-2.)
4. Disconnect the three connectors (CN1, CN2 and CN3) of the CT-205 board.
5. Remove the screw and lift the CT-205 board straight up about 5 cm.
6. Disconnect the connector CN4 of the CT-205 board.



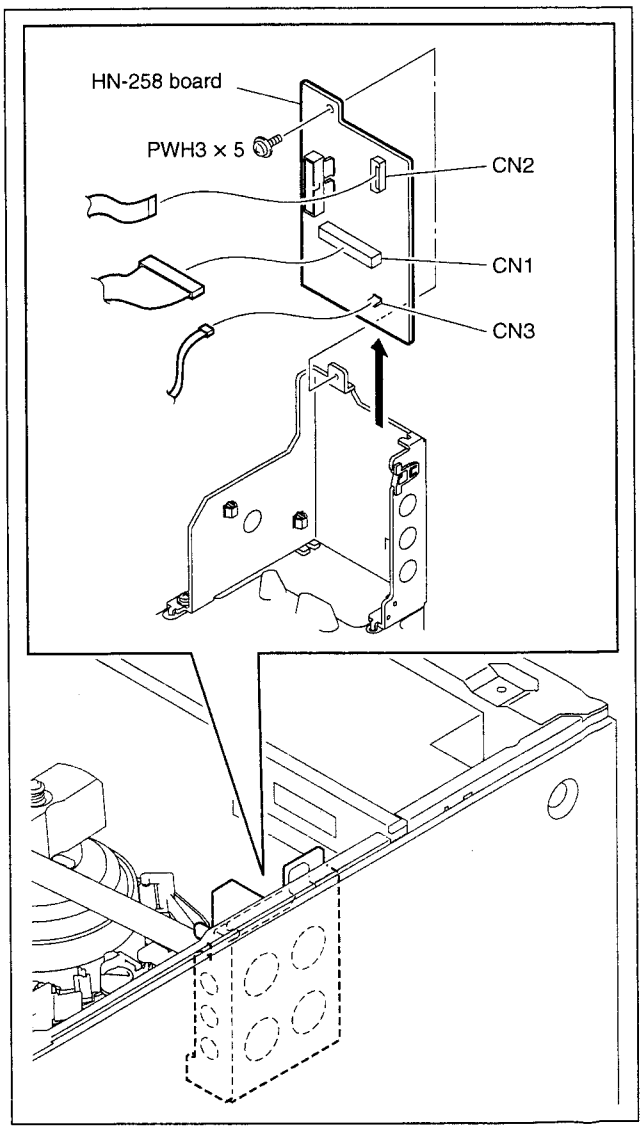
For installation, perform in the reverse order of the removal procedures.

Note

Unless the CT-205 board is properly held in the bracket B, open the SV-205 board and correct the routing of the harness.

1-9-7. HN-258 Board Replacement

1. Turn the power OFF and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD assembly. (Refer to Section 1-2.)
4. Disconnect the connector CN2 of the HN-258 board.
5. Remove the screw and lift the HN-258 board strait up about 5 cm.
6. Disconnect the connectors CN1 and CN3 of the HN-258 board.



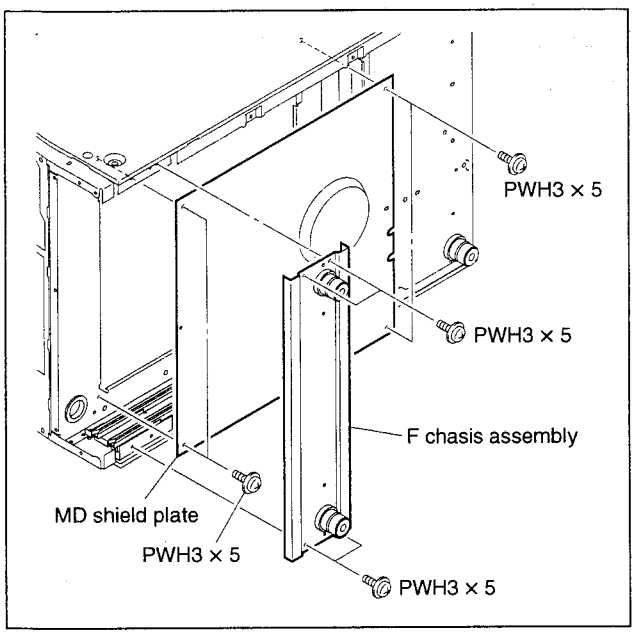
For installation, perform in the reverse order of the removal procedures.

Note

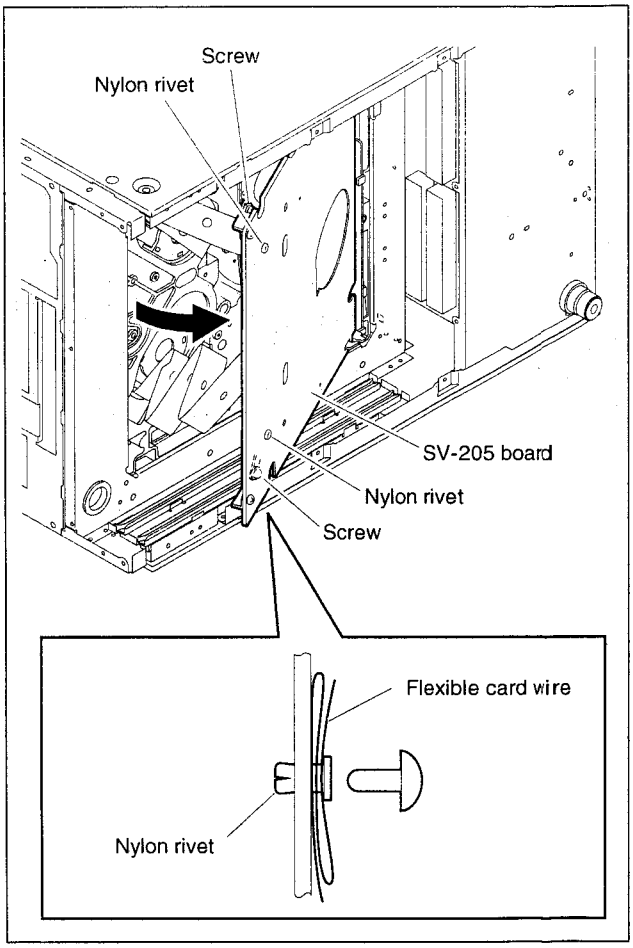
Unless the HN-258 board is not held in the bracket C, open the SV-205 board and correct the routing of the harness.

1-9-8. SV-205 Board Replacement

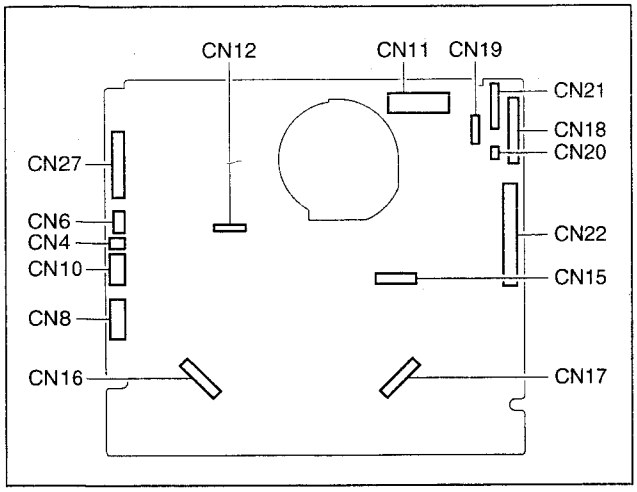
1. Turn the power OFF and remove the power cord.
2. Remove the front panel. (Refer to Section 1-1.)
3. Remove the FCC panel assembly, then remove the DPR-160 and FM-75 boards.
4. Remove the bottom plate. (Refer to Section 1-1.)
5. Remove the four screws to remove the F chassis assembly.
6. Remove the four screws to remove the MD shield plate.



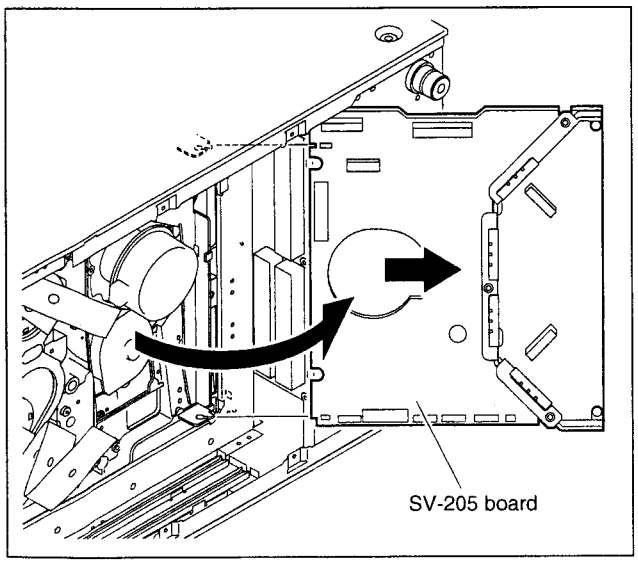
7. Loosen the two screws and pivot open the SV-205 board in the arrow direction about 30-degree.
8. Remove the nylon rivet securing the flexible card wire.



9. Pivot open wider the SV-205 board and disconnect the 16 connectors shown in the figure.



10. Pivot open the SV-205 board about 110-degree and remove it in the arrow direction.



For installation, perform in the reverse order of the removal procedures.

1-10. Functions of LED Indicators on Circuit Boards

DPR-160 Board

LED No.	Color	Function
D1	Green	Lights up when A/E ch SYNC Pattern error arises. (Level: low)
D2	Green	Lights up when A/E ch SYNC Pattern error arises. (Level: low)
D3	Orange	Lights up when A/E ch SYNC Pattern error arises. (Level: medium)
D4	Orange	Lights up when A/E ch SYNC Pattern error arises. (Level: medium)
D5	Red	Lights up when A/E ch SYNC Pattern error arises. (Level: high)
D6	Green	Lights up when B/F ch SYNC Pattern error arises. (Level: low)
D7	Green	Lights up when B/F ch SYNC Pattern error arises. (Level: low)
D8	Orange	Lights up when B/F ch SYNC Pattern error arises. (Level: medium)
D9	Orange	Lights up when B/F ch SYNC Pattern error arises. (Level: medium)
D10	Red	Lights up when B/F ch SYNC Pattern error arises. (Level: high)
D11	Green	Lights up when C/G ch SYNC Pattern error arises. (Level: low)
D12	Green	Lights up when C/G ch SYNC Pattern error arises. (Level: low)
D13	Orange	Lights up when C/G ch SYNC Pattern error arises. (Level: medium)
D14	Orange	Lights up when C/G ch SYNC Pattern error arises. (Level: medium)
D15	Red	Lights up when C/G ch SYNC Pattern error arises. (Level: high)
D16	Green	Lights up when D/H ch SYNC Pattern error arises. (Level: low)
D17	Green	Lights up when D/H ch SYNC Pattern error arises. (Level: low)
D18	Orange	Lights up when D/H ch SYNC Pattern error arises. (Level: medium)
D19	Orange	Lights up when D/H ch SYNC Pattern error arises. (Level: medium)
D20	Red	Lights up when D/H ch SYNC Pattern error arises. (Level: high)
D21	Green	Lights up when C1 error arises in the first half of the A/E truck.
D22	Green	Lights up when C1 error arises in the first half of the B/F truck.
D23	Green	Lights up when C1 error arises in the first half of the C/G truck.
D24	Green	Lights up when C1 error arises in the first half of the D/H truck.
D25	Orange	Lights up when C2 error arises in the first half of the truck.
D26	Green	Lights up when C1 error arises in the last half of the A/E truck.
D27	Green	Lights up when C1 error arises in the last half of the B/F truck.
D28	Green	Lights up when C1 error arises in the last half of the C/G truck.
D29	Green	Lights up when C1 error arises in the last half of the D/H truck.
D30	Orange	Lights up when C2 error arises in the last half of the truck.

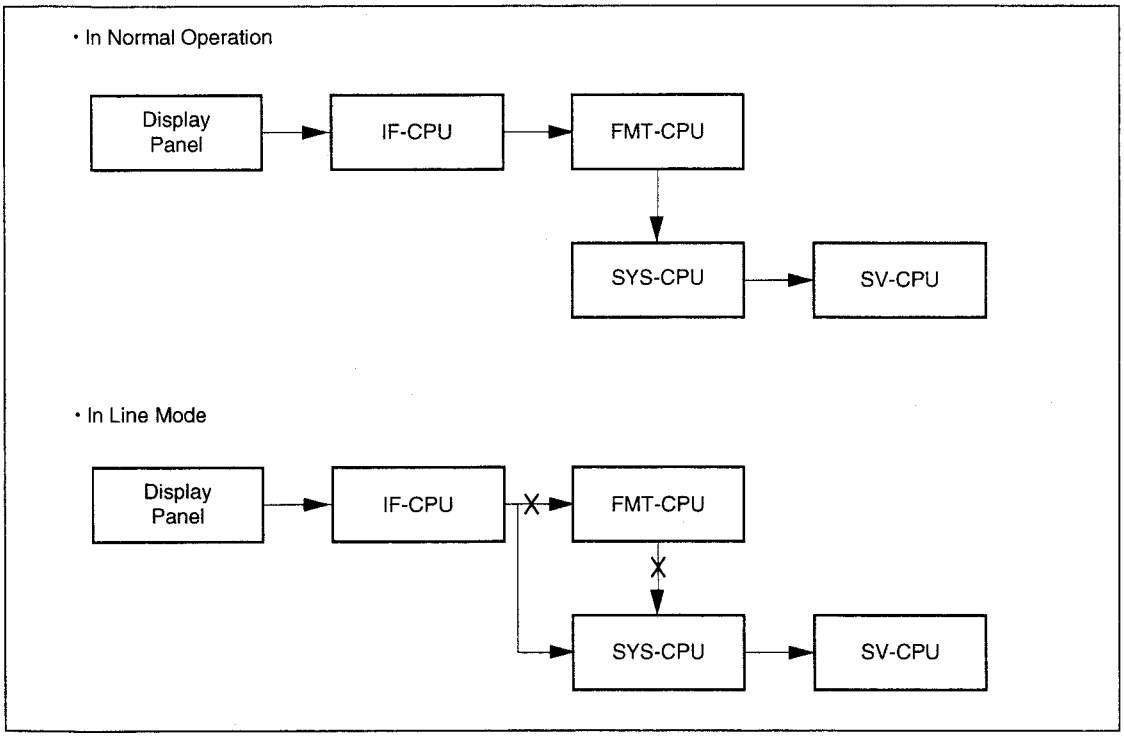
FM-75 Board

LEDs on the board are all for factory adjustment.

1-11. Line Mode

1-11-1. Overview

Line mode directly operates the tape motion with the switches in this unit.
The switches necessary for operation are contained on the DSP-90 board in the front panel. Once entering the line mode, the FMT-CPU which controls the SCSI interface is logically cut off and the switch setting status on the DSP-90 board are directly sent to the SYS-CPU.
Consequently, the operation by a command issued from the host computer stops.
To return from the line mode to the normal operation condition, power this unit off and then on.



1-11-2. Starting/Ending the Line Mode

Starting the Line Mode

1. Remove the front panel. (Refer to Section 1-1.)
2. Press the three switches S100 (STOP), S113 (LEFT) and S116 (RIGHT) at the same time. Accordingly, all LED's light up and the indication of the LCD changes as follows.
3. Insert a cassette.

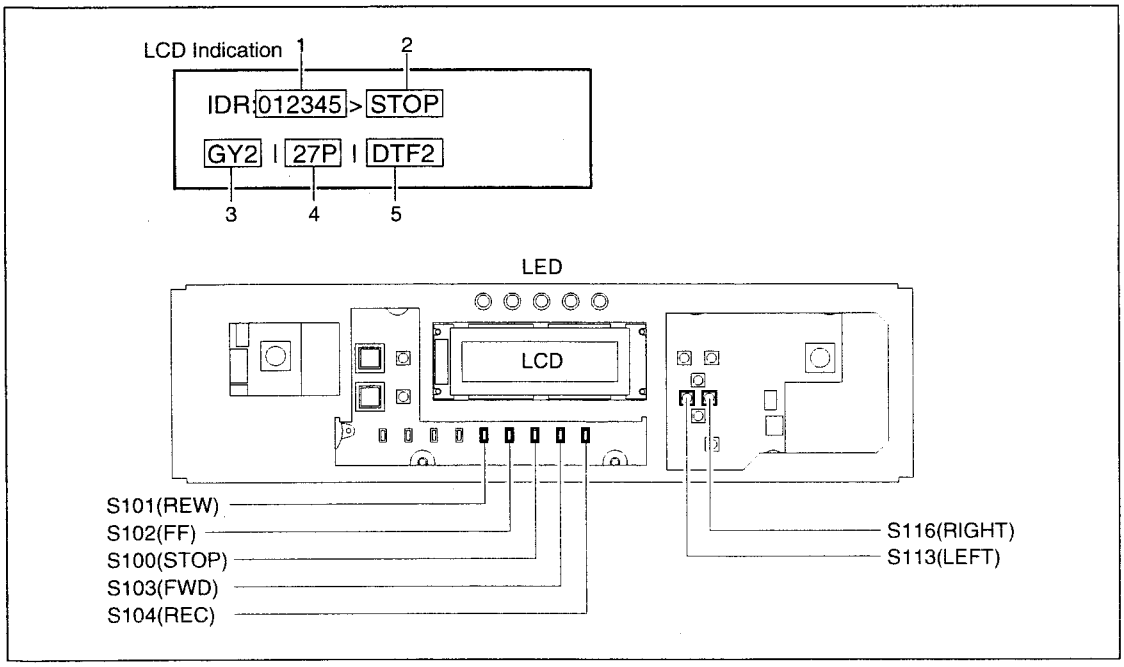
Note

When the cassette compartment has been taken off, perform the procedures as follows.

(1) Place the cassette tape with the cassette and the cassette post aligned, and put a weight of around 1000g to prevent the cassette from rising.

(2) Press the switch S109 (STANDBY).

The logical format name and the ECC parity setting are displayed on the LCD.
Press a switch among five switches on the DSP-90 board (S110, S1011, S102, S103 and S104) to operate the tape.

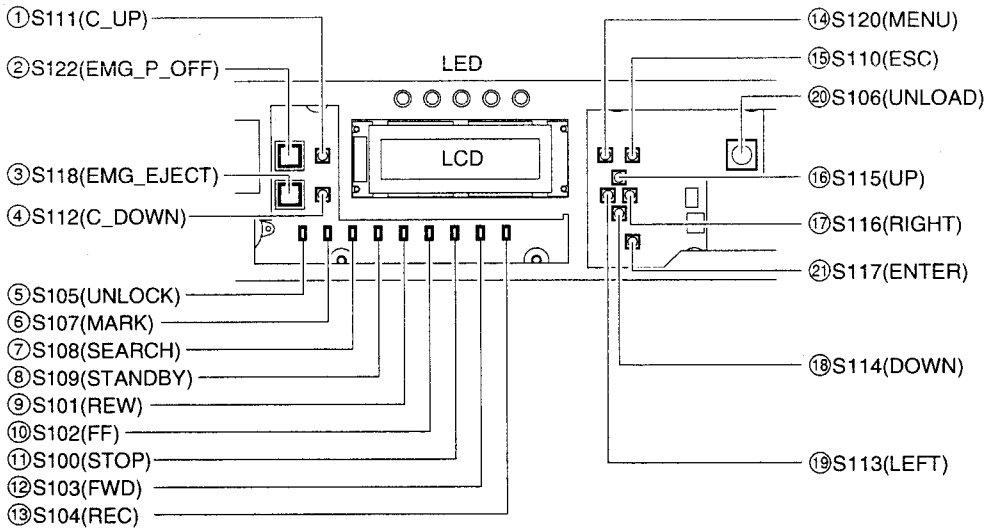


①: Current IDR value
②: Current line mode status (Besides the indication in the figure, FWD, REC, etc are displayed.)
③: Cassette type currently inserted (GY1: DTF-1 GY cassette, GY2: DTF-2 GY cassette, DR2: DIR cassette)
④: Current parity status (27P: 27 parity, 9P:9 parity)
⑤: Current format status (DTF1: DTF-1 mode, DTF2: DTF-2 mode)

Ending the Line Mode

Turn the power OFF.

1-11-3. Switch Function



No.	Ref No.	Function	Contents
①	S111	C_UP	Unassigned
②	S122	EMG_P_OFF	Turns the power off
③	S118	EMG_EJECT	Ejects in emergency (unassigned)
④	S112	C_DOWN	Unassigned
⑤	S105	UNLOCK	Changes the indication mode of the serial terminal (Normally unassigned)
⑥	S107	MARK	Marks the current IDR value
⑦	S108	SEARCH	Searches for the stored ID.
⑧	S109	STANDBY	Sets standby ON or OFF. (When the cassette compartment is taken off, induces operation start.)
⑨	S101	REW	Rewinds the tape
⑩	S102	FF	Fast forwards the tape
⑪	S100	STOP	Stops the tape
⑫	S103	FWD	Forwards the tape
⑬	S104	REC	Records (Press S103 and S104 at the same time.)
⑭	S120	MENU	Shifts the setting mode
⑮	S110	ESC	Exits from the setting mode (Saves no setting value)
⑯	S115	UP	Changes the setting value and shifts the mode
⑰	S116	RIGHT	Changes the setting value
⑱	S114	DOWN	Changes the setting value and shifts the mode
⑲	S113	LEFT	Changes the setting value
⑳	S106	UNLOAD	Ejects the tape
㉑	S117	ENTER	Exits from the setting mode (Saves the setting value)

1-11-4. Setting Mode

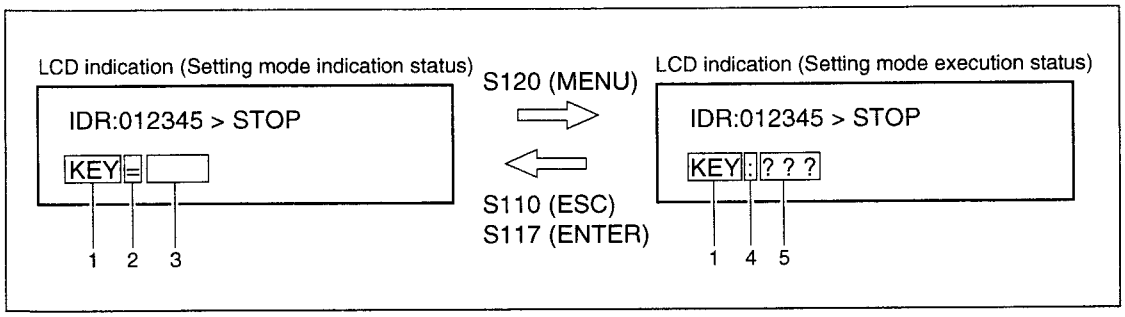
The setting mode comprises of six modes to be used for adjustment as bellow.
The setting value can be changed in every setting mode, yet use care that the change of the setting is valid, yet in some case invalid. Even if changing in the invalid status, the setting value is not reflected. (Refer to the following list of valid status for change.)

Note

In the setting mode (XXX:YYY is displayed on the LCD), the operation key such as FWD can not be accepted.
In the setting mode, the LED (LOCK) is blinking for notice.

Shifting to the Setting Mode

1. Select the setting mode by pressing the switches S115 (UP) and S114 (DOWN) in the line mode.
2. Press the switch S120 (MENU) for determination.
   (Shifting to the setting mode, the character after "KEY" changes from "=" to ":".)



3. To change the setting value, press the specific key listed in the following list.
4. To exit from the setting mode, press the switches below.
   When storing the setting value: S117 (ENTER)
   When storing no setting value: S110 (ESC)

Setting Value and Setting Method for Each Mode

Setting Value for Each Mode

Key	Mode	Setting value	Contents
VAR	Variable speed mode	0XX	Current speed (XX-fold speed)
PAT	Writing pattern mode	NML	Data from the bank memory
		1T	1T mode
		2T	2T mode
		4T	4T mode
		8T	8T mode
		DST	Dstar unit (developing unit) mode
		KJN	Reference tape mode
SS	SS adjusting mode	XY:ZZZ	X: channel (strobe signal) Y: address in the DA ZZZ: adjusting value
TRC	Tracking adjusting mode	0XX	Current tracking value
PLM	Head mode when playing back	NML	Play back by the PB head
		RHP	Play back by the REC head
C1	C1 mode when recording	OFF	C1 is OFF state
		ON	C1 is ON state

Setting Method and Restriction

Key	Mode	Valid status for change	S115	S114	S116	S113	SXXX	S110/S117
VAR	Variable speed mode	When tape is inserted	+1	−1	+10	−10	–	EXIT
PAT	Writing pattern mode	When recording	Next	Former	–	–	–	EXIT
SS	SS adjusting mode	In all status	+1	−1	S*	S*	S*	EXIT
TRC	Tracking adjusting mode	In all status	+1	−1	+10	−10	–	EXIT
PLM	Head mode when playing back	When stopping	Next	Former	–	–	–	EXIT
C1	C1 mode when recording	When stopping	Next	Former	–	–	–	EXIT

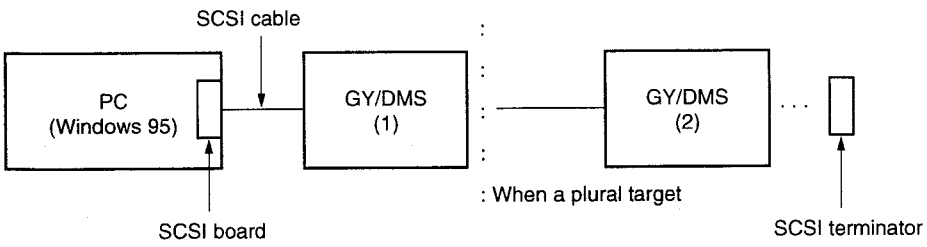
1-12. SCSI Control Software scsitool.exe

SCSI commands can be sent on Windows, to evaluate the functions of each target command.
This tool enables different models such as GY/DMS to be checked.
Functions of GY and DMS as a set can be checked.

1-12-1. Operating Environment

PC : IBM PC/AT compatible
OS : Windows 95
SCSI board : Adaptec AHA-2944UW (Ultra Wide differential)

1-12-2. Connection



1-12-3. Starting

1. Double click the execution file "scsitool.exe" with the mouse.

2. As the SCSI_TOOL screen will start. Select the menu item "DEVICE" and click the popup menu "SCAN SCSI".

3. Scan SCSI IDs 0 to 15, and acknowledge the currently connected SCSI ID. (The connected SCSI ID area displays information on the device.)

4. Select the desired tests such as single commands, etc.

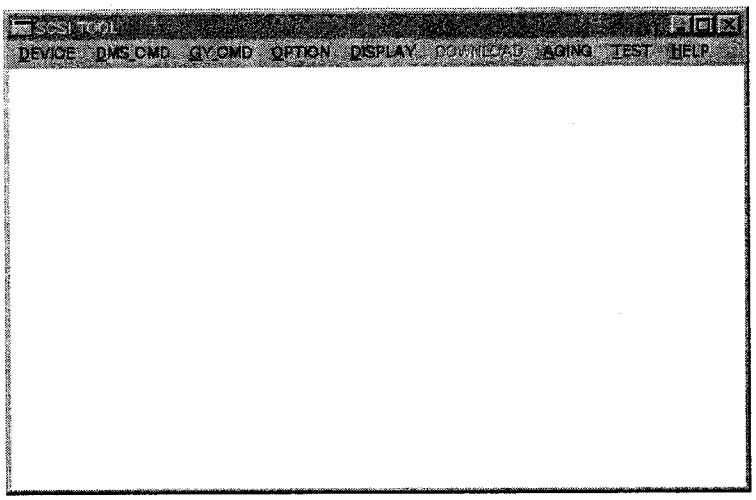
1-12-4. Ending

1. Click "☒" at the top right of the SCSI_TOOL screen, or click "▭"at the top left, select "Close" of the popup menu, and close the screen.

1-12-5. Functions

When SCSI TOOL is executed, the following menu will be displayed. The contents of which are as shown.
♦Refer to Fig. 1.

1) DEVICE
2) DMS_CMD
3) GY_CMD
4) OPTION
5) DISPLAY
6) DOWNLOAD
7) AGING
8) TEST
9) HELP

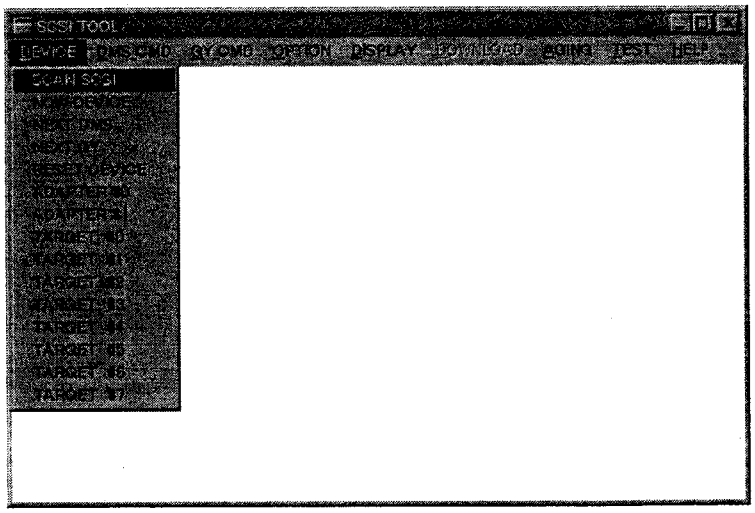


<Fig. 1> State when Tool is Started (Main Menu)

1) DEVICE ... Scan function of device
♦Refer to Fig. 2.

Indicates which device is connected to which ID. When several devices are connected, the device ID targeted can be changed.

How to use : Click the item to be selected with the mouse.



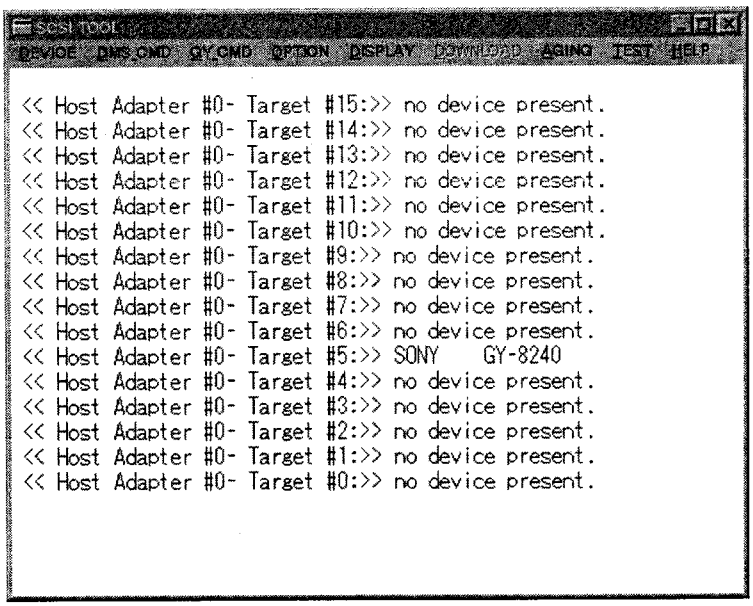
<Fig. 2> Scan Function Menu of Device

[Popup Menu]

- SCAN SCSI : Indicates the SCSI ID currently connected.

  By executing this menu, the SCSI ID connected to this tool will be acknowledged. If a device is connected, the name of the vendor and model will be displayed at the ID No. connected.

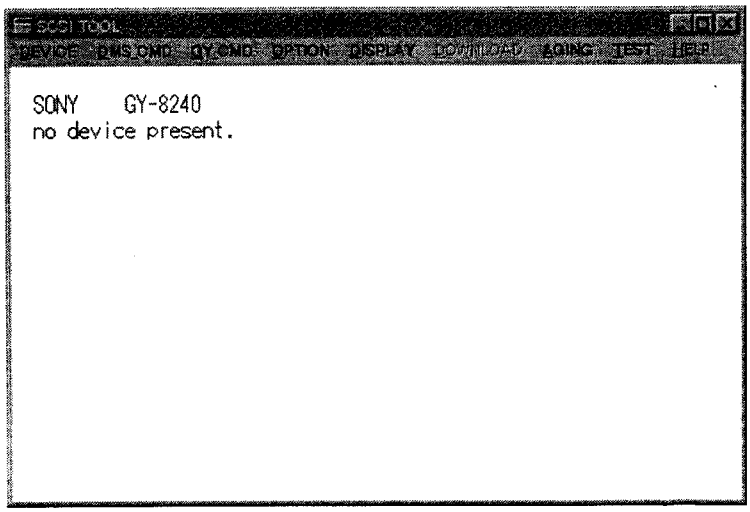
  ♦Refer to Fig. 3.



<Fig. 3> Screen When "SCAN SCSI" of the Popup Menu is Executed (GY-8240 is connected to ID = 5)

- NOW DEVICE : Displays the name of the vendor and model of the device acknowledged by the host currently for each GY/DMS.

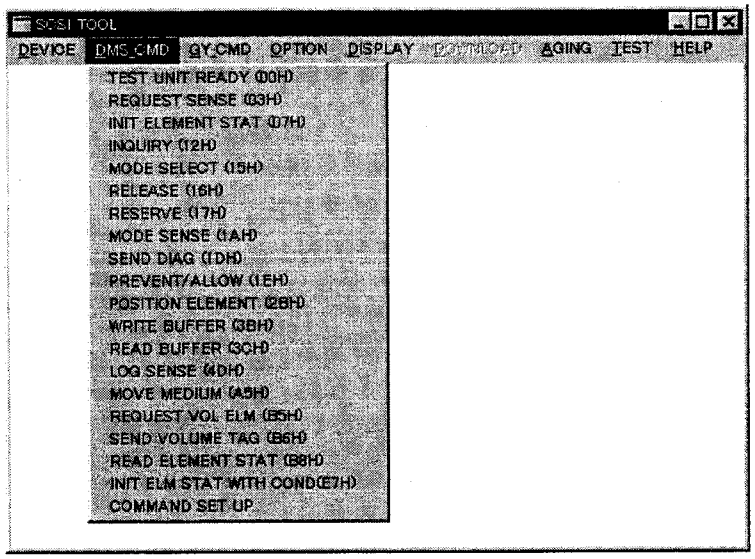
  ♦Refer to Fig. 4.



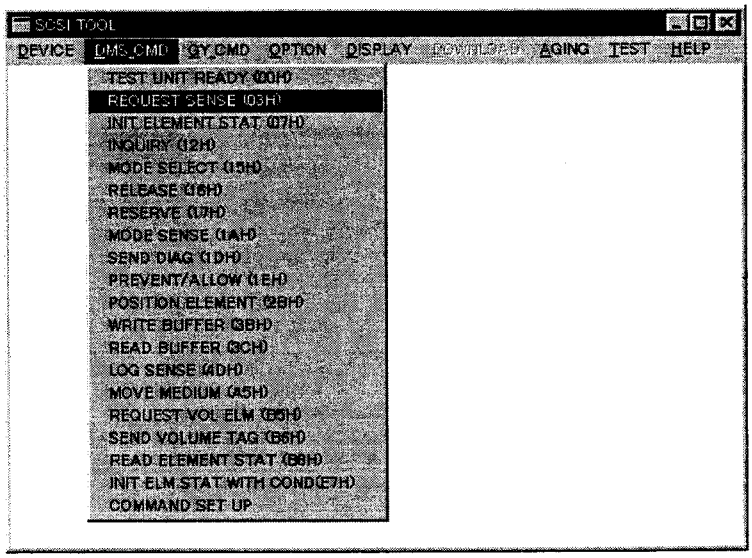
<Fig. 4> Screen When "NOW DEVICE" of the Popup Menu is Executed (DMS is not connected, and only GY-8240 is connected)

- NEXT DMS : If several DMSs are connected, the direct target will be the DMS connected to the DMS currently made the direct target by the host.
- NEXT GY : If several GYs are connected, the direct target will be the GY currently made the direct target by the host.
- RESET DEVICE : Resets the device. (* Not usable with this TOOL.)
- ADAPTER #0 : Set the adapter number to "0".
- ADAPTER #1 : Set the adapter number to "1".
- TARGET #0 to #7 : Set the SCSI ID of the target to "0" to "7".

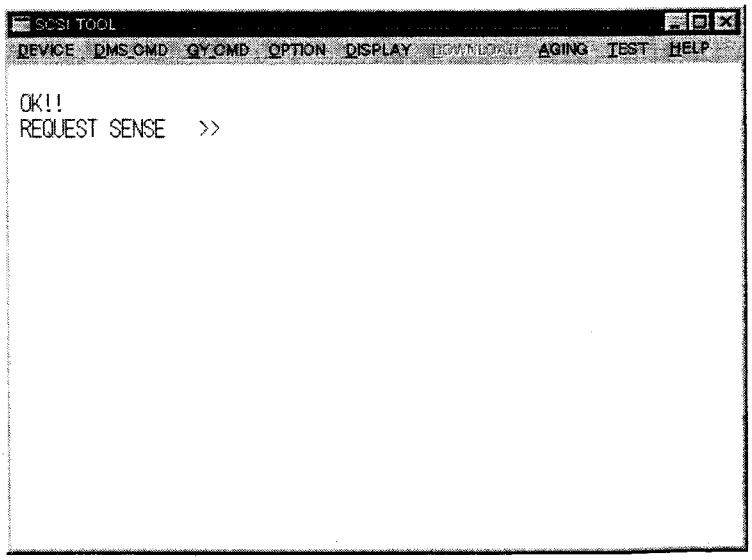
2) DMS_CMD ... Single command issue function for DMS
♦ Refer to Fig. 5.



<Fig. 5-1> DMS Single Command Menu



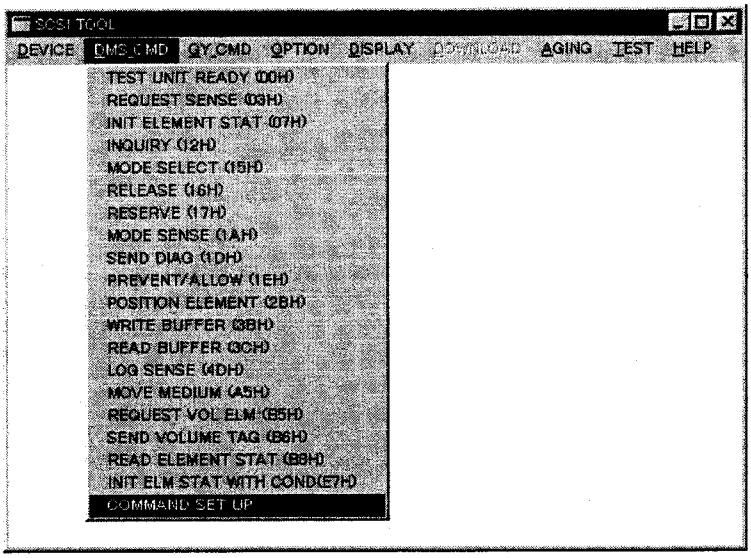
<Fig. 5-2> When "REQUEST SENSE (03H)" of the Popup Menu is Selected



<Fig. 5-3> Screen When "<Fig. 5-2>" is Executed

The SCSI command can be issued for DMS. As parameters can also be set, command functions can be checked.
The parameters of each command can be specified at "COMMAND SET UP" of the popup menu.
◆Refer to Fig. 6.

How to use : Click the item to be selected using the mouse.
At the "COMMAND SET UP" dialog box, input the required items, and click the OK button with the mouse. Then click the commands to be sent.

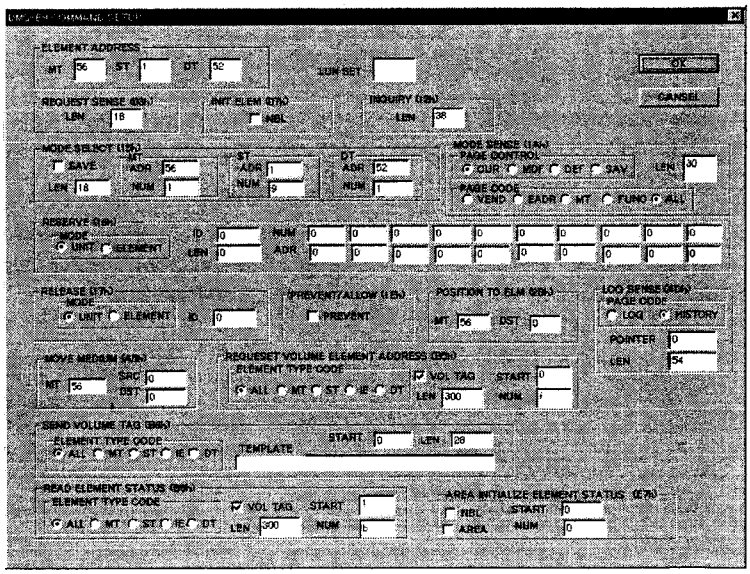


<Fig. 6-1> Setup Menu for DMS Single Commands

[Popup Menu]
- TEST UNIT READY (00H)
- REQUEST SENSE (03H)
- INIT ELEMENT STAT (07H)
- INQUIRY (12H)
- MODE SELECT (15H)
- RELEASE (16H)
- RESERVE (17H)
- MODE SENSE (1AH)
- SEND DIAG (1DH)
- PREVENT/ALLOW (1EH)
- POSITION ELEMENT (2BH)
- WRITE BUFFER (3BH)
- READ BUFFER (3CH)
- LOG SENSE (4DH)
- MOVE MEDIUM (A5H)
- REQUEST VOL ELM (B5H)
- SEND VOLUME TAG (B6H)
- READ ELEMENT STAT (B8H)
- INIT ELM STAT WITH COND (E7H)

SCSI command (For details of functions, refer to "DMS-B9 PROTOCOL AND COMMAND SPECIFICATIONS".)

- COMMAND SET UP — Command parameter setting

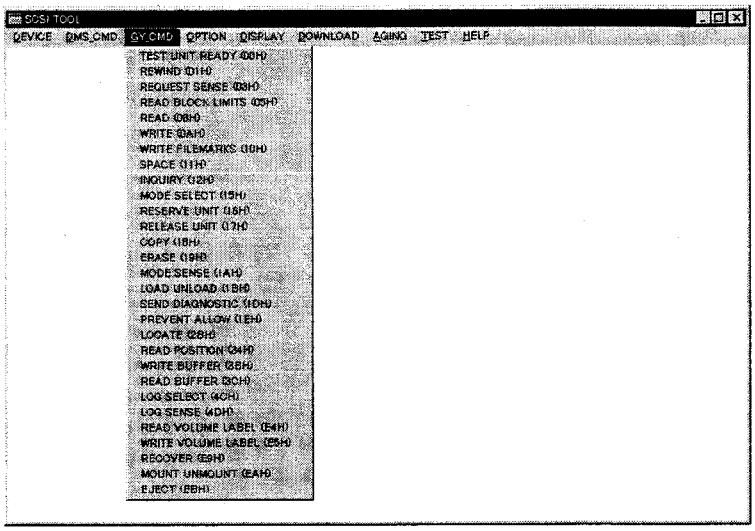


<Fig. 6-2> Screen When "<Fig. 6-1>" is Executed (Single Command Setup Screen)

3) GY_CMD ... Single Command Issue Function for GY
♦ Refer to Fig. 7.

The SCSI command can be issued for GY.
Set parameters at the "OPTION" menu.

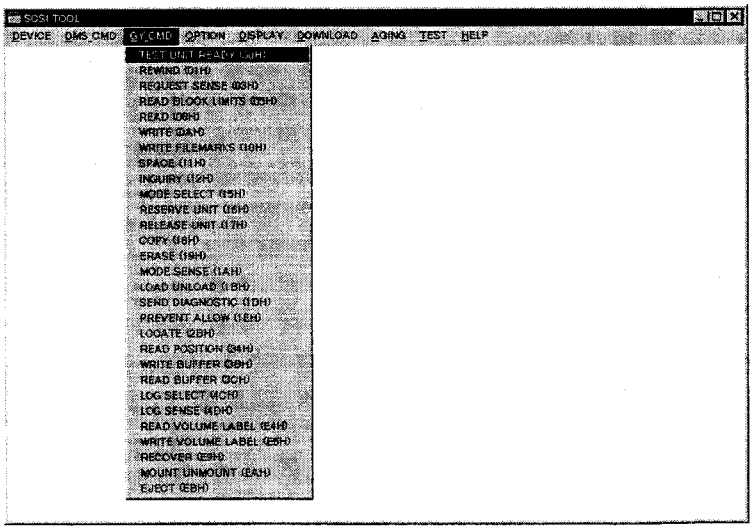
How to use : Click the item to be selected with the mouse.



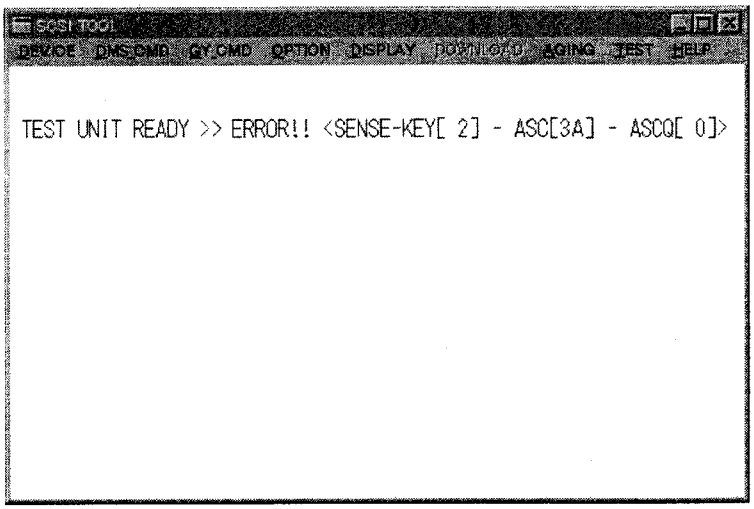
<Fig. 7-1> GY Single Command Menu

[Popup Menu]
- TEST UNIT READY (00H)
- REWIND (01H)
- REQUEST SENSE (03H)
- READ BLOCK LIMITS (05H)
- READ (08H)
- WRITE (0AH)
- WRITE FILEMARKS (10H)
- SPACE (11H)
- INQUIRY (12H)
- MODE SELECT (15H)
- RESERVE UNIT (16H)
- RELEASE UNIT (17H)
- COPY (18H)
- ERASE (19H)
- MODE SENSE (1AH)
- LOAD UNLOAD (1BH)
- SEND DIAGNOSTIC (1DH)
- PREVENT ALLOW (1EH)
- LOCATE (2BH)
- READ POSITION (34H)
- WRITE BUFFER (3BH)
- READ BUFFER (3CH)
- LOG SELECT (4CH)
- LOG SENSE (4DH)
- READ VOLUME LABEL (E4H)
- WRITE VOLUME LABEL (E5H)
- RECOVER (E9H)
- MOUNT UNMOUNT (EAH)
- EJECT (EBH)

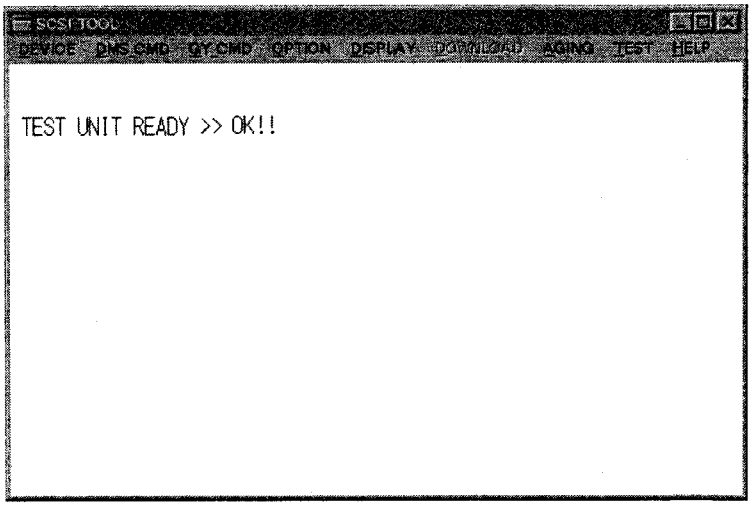
SCSI command
(For details of functions, refer to "GY-8240UWD PROTOCOL AND COMMAND SPECIFICATIONS".)



<Fig. 7-2> When "TEST UNIT READY" (00H)" of the Popup Menu is Executed



<Fig. 7-3> Screen When "<Fig. 7-2>" is Executed (Error)

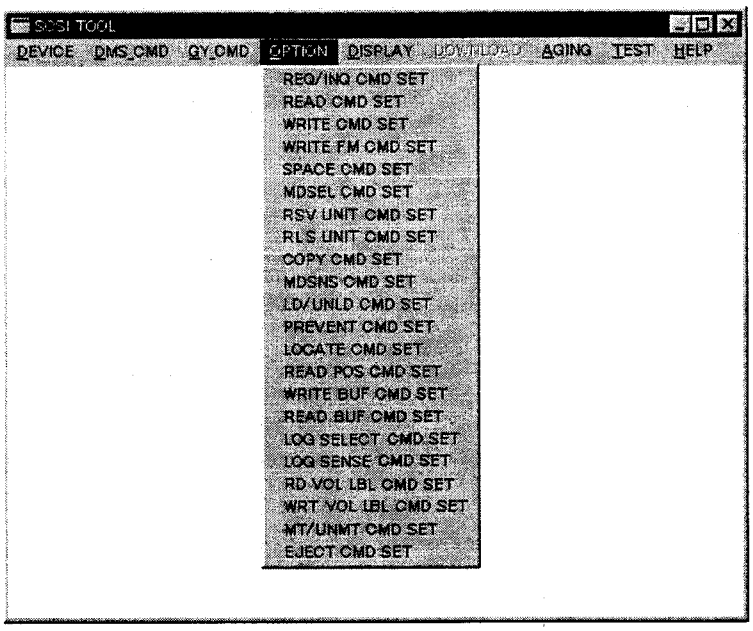


<Fig. 7-4> Screen When "<Fig. 7-2>" is Executed (GOOD)

4) OPTION ... Function for Setting GY Command Parameter

Data which need to be set by the command for GY can be set by command.
♦ Refer to Fig. 8.

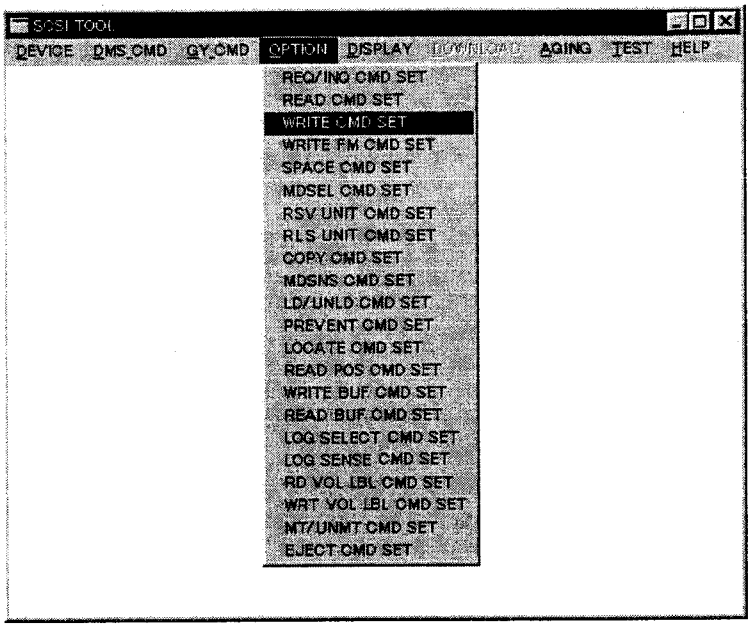
How to use : Click the item to be set using the mouse. The parameter setting dialog box will be displayed for each command. Input the values, and click the "OK" button. (Use as a set with the "3) GY_CMD".)



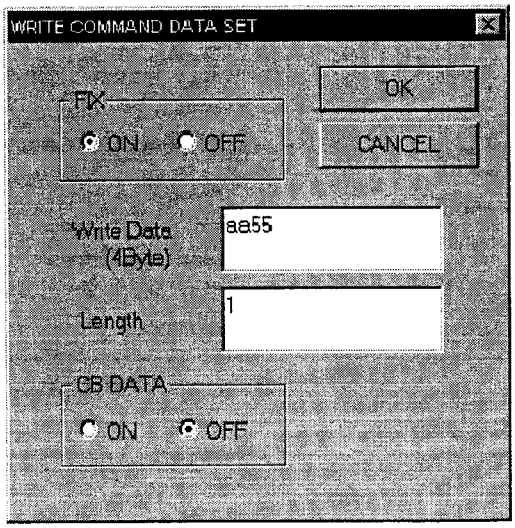
<Fig. 8-1> Setup Menu of GY Single Commands

[Popup Menu]

- REQ/INQ CMD SET — Setting of parameters of Request Sense command and Inquiry command
- READ CMD SET — Setting of parameters of Read command
- WRITE CMD SET — Setting of parameters of Write command
- WRITE FM CMD SET — Setting of parameters of Write Filemarks command
- SPACE CMD SET — Setting of parameters of Space command
- MDSEL CMD SET — Setting of parameters of Mode Select command
- RSV UNIT CMD SET — Setting of parameters of Reserve Unit command
- RLS UNIT CMD SET — Setting of parameters of Release Unit command
- COPY CMD SET — Setting of parameters of Copy command
- MDSNS CMD SET — Setting of parameters of Mode Sense command
- LD/UNLD CMD SET — Setting of parameters of Load/Unload command
- PREVENT CMD SET — Setting of parameters of Prevent/Allow command
- LOCATE CMD SET — Setting of parameters of Locate command
- READ POS CMD SET — Setting of parameters of Read Position command
- WRITE BUF CMD SET — Setting of parameters of Write Buffer command
- READ BUF CMD SET — Setting of parameters of Read Buffer command
- LOG SELECT CMD SET — Setting of parameters of Log Select command
- LOG SENSE CMD SET — Setting of parameters of Log Sense command
- RD VOL LBL CMD SET — Setting of parameters of Read Volume Label command
- WRT VOL LBL CMD SET — Setting of parameters of Write Volume Label command
- MT/UNMT CMD SET — Setting of parameters of Mount/Unmount command
- EJECT CMD SET — Setting of parameters of Eject command



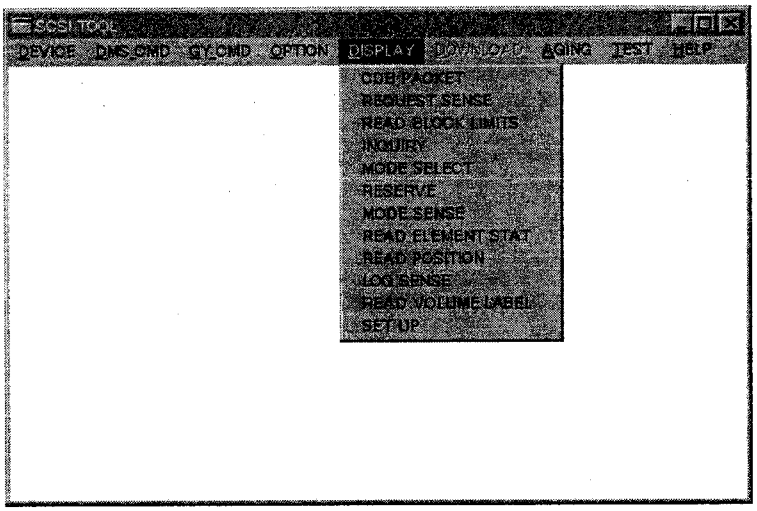
<Fig. 8-2> When "WRITE CMD SET" (Write command setup) of the Popup Menu is Selected



<Fig. 8-3> Dialog Box When "<Fig. 8-2>" is Executed

5) Display .... Display function

Sense commands such as Request Sense and commands with parameters such as Mode Select can be viewed anytime because the Sense data and parameters are stored on the program. Command packets just issued can also be viewed. The display format can be changed at "SETUP" of the popup menu.
♦Refer to Fig. 9-1.

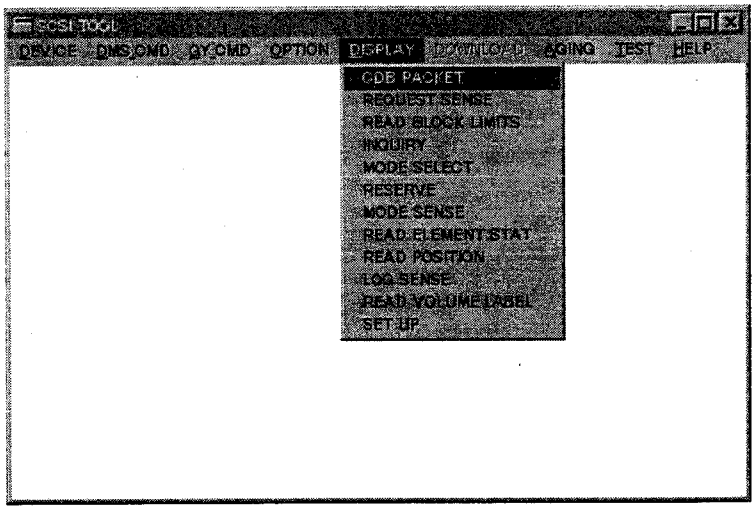


<Fig. 9-1> Display Function Menu

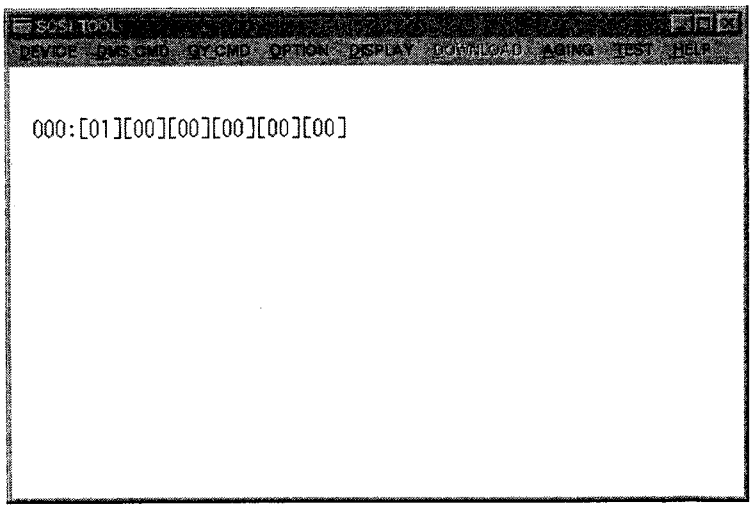
How to use:Click the items to be selected with the mouse. The data of the item selected will be displayed.
Click "SETUP" of the popup menu, and when the desired format ("DUMP"/"ANALYSIS") is selected, the dialog will be displayed. Click either one format and click the "OK" button.

[Popup Menu]

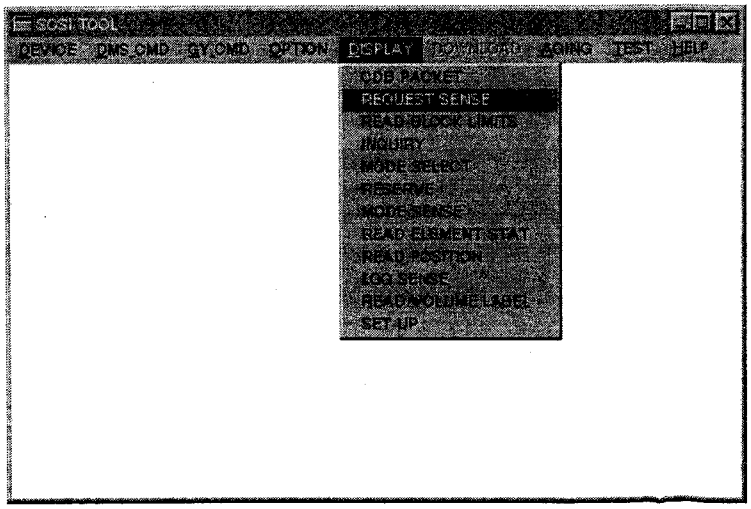
- CDB PACKET — Displays the command packet just sent
- REQUEST SENSE — Displays the Request Sense data
- READ BLOCK LIMITS — Displays the Read Block Limits data
- INQUIRY — Displays the Inquiry data
- MODE SELECT — Displays the Mode Select data
- RESERVE — Displays the Reserve data
- MODE SENSE — Displays the Mode Sense data
- READ ELEMENT STAT — Displays the Read Element Status data
- READ POSITION — Displays the Read Position data
- LOG SENSE — Displays the Log Sense data
- READ VOLUME LABEL — Displays the Read Volume Label data
- SET UP — For setting the display format



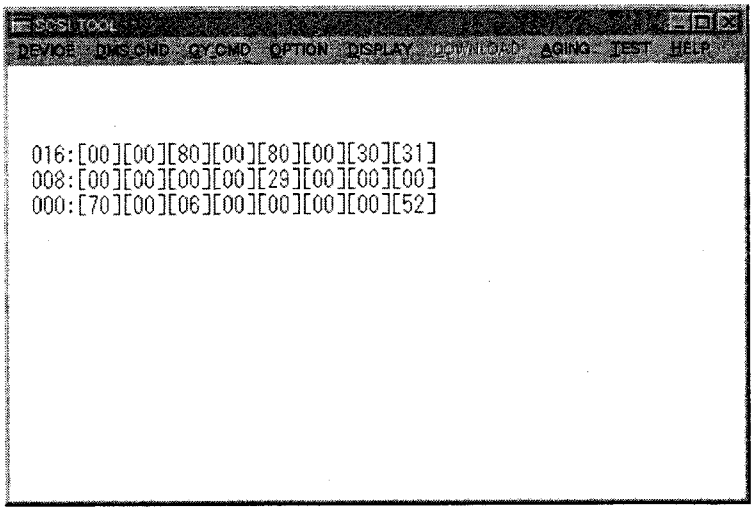
<Fig. 9-2> When "CDB PACKET" of the Popup Menu is Selected



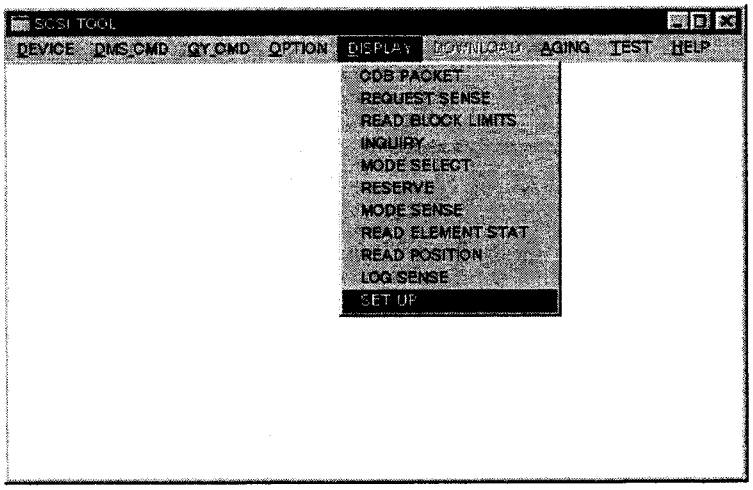
<Fig. 9-3> Screen When "<Fig. 9-2>" is Executed



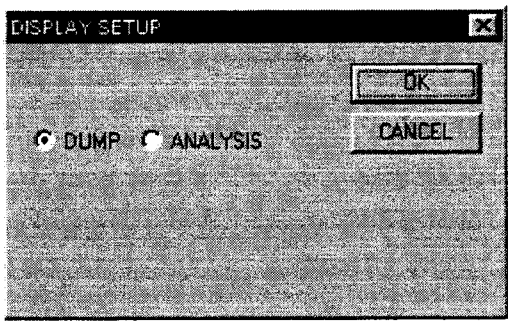
<Fig. 9-4> When "REQUEST SENSE" of the Popup Menu is Selected



<Fig. 9-5> Screen When "<Fig. 9-4>" is Executed



<Fig. 9-6> When "SET UP" of Popup Menu is Selected



<Fig. 9-7> Dialog Box When "<Fig. 9-6>" is Executed

6) DOWNLOAD ... Download function

By specifying the FILE name and Firmware type, file can be downloaded to the device connected

[Popup Menu]
• INPUT FILE : Specify the Firmware type and file name.
* Firmware type 1. SCSI (SCSI CPU : GY10/GY2120)
(All of CPU or each CPU : GY-8240)
2. DRIVE (DRIVE CPU : GY10)
3. SYSCON (SYSCON CPU : GY2120)
4. SERVO (SERVO CPU : GY2120)
5. IF (IF CPU : GY2120)
As the Firmware type is automatically determined by the file contents of the GY-8240, the Firmware type setting is ignored.
• START : Executes Download

7) AGING ... Program for checking service operations
* Refer to SCSI TOOL AGING commands

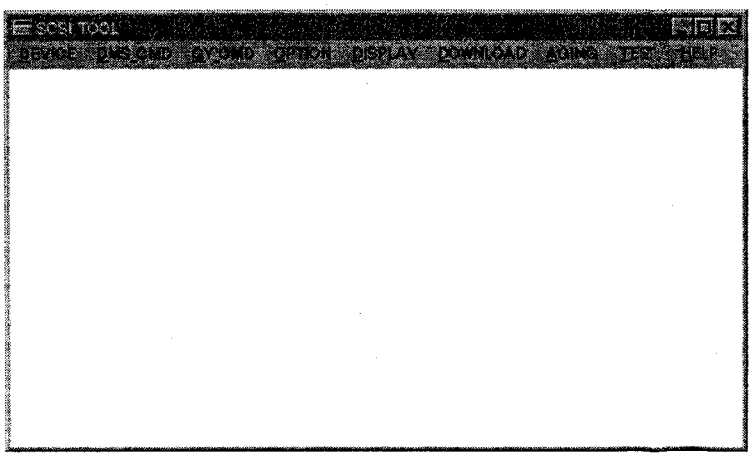
8) TEST ... Program for test
* Do not use

9) Help ... Displays the version of this tool
◆Refer to Fig. 10.

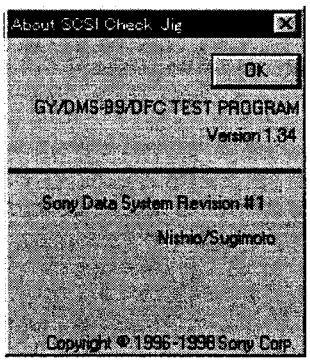
The current version of this tool can be known.

How to use : Click "About..." of the popup menu. The version dialog box will be displayed.

[Popup Menu]
• About... : SCSI TOOL version



<Fig. 10-1> Help Menu (Function which Displays the Tool Version)



<Fig. 10-2> Dialog Box When "<Fig. 10-1>" is Executed

1-12-6. SCSITOOL-AGING Command

(GY-8240 does not support the multi volume, so that this command is unavailable.)

Purpose

Operates the unit continuously by each command, checks the state, and outputs the results.

Functions

Sets parameters and outputs log files.
(The AGING operation takes about 45 minutes at the default values.)

1. Parameter Settings

If parameters need to be set, click "SET PARAM" in fig. 11-1, and change the values in fig. 11-2 as desired.

Write Data

- Length : Transmission length (block number) of WRITE command.
  [Default] 1
- Block Size : Block size of "MODE SELECT" command.
  [Default] 1024

Note

The product of the transmission length multiplied by the block size is 65,536 at maximum.
Set the block size in units of 512.

- Repeat Write Count
  Set the number of times to issue the "WRITE" command.
  [Default] 100

Create Volume

- Vol.Unit Num : The number of volumes to be made on the tape.
  [Default] 5
- Volume Size : Capacity per volume.
  (Unit MB)
  [Default] 500 MB

Note

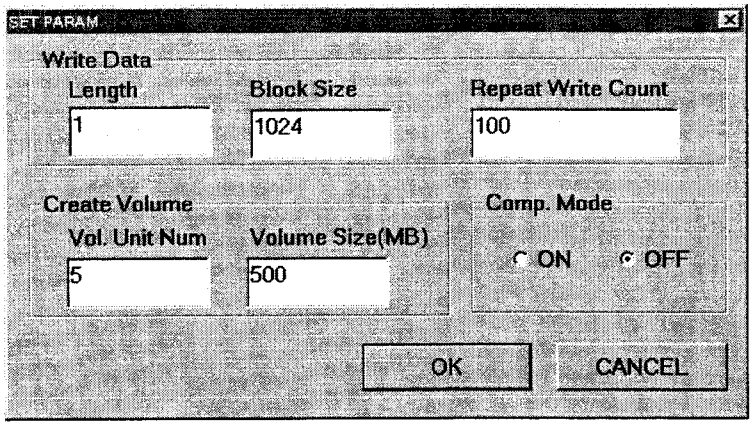
The capacity per volume should be the same. Different values cannot be set.

Comp.Mode

Set whether to compress during writing or not.

- ON : Compresses the data.
- OFF: The data is not compressed.

  [Default] OFF



<Fig. 11-1> Parameter Setting

2. Log File

In the log file, SCSI command and execution results for every operation are outputted.

The log file is stored in the folder with the "SCSITOOL" file.

The log file name set when the software is started is "0000.log". Thereafter, each time"AGING" is executed, the name is set as 0001 → 0002 →...

Output Method

The output contents are as follows, as shown in Fig. 11-2.

- Date
- Start time
- Host adapter number
- Target ID
- Vendor name, model, version
- Parameter setting value

  Outputs the values of each parameter when executing aging.
- Executed SCSI command and results

  If the SCSI command name and results are OK, outputs "OK".

  If bad, details are output.
- Bad spot number after writing/reading, etc.

  As the value of the bad spot number, etc., the value before starting writing/reading and value when writing/reading ended are outputted.
- Ending time

<Fig. 11-2> Log File

```
 ***== Aging Test =****

Date :          10/28/97
Start Time :    18:01:15

<< Host Adapter >> :   # 0
<< Target ID >> :   # 6
<< Vendor/ Type/Ver.>> :   SONY       GY-8240 1.00

<< PARAMETER >>
=== Length                 === :  1
=== Block Size             === :  1024
=== Write Repeat Count     === :  3
=== Vol.Unit Num           === :  5
=== Volume Size (MB)       === :  1
=== Comp. Mode             === :  OFF

      TEST UNIT READY  >> OK!!
      MODE SELECT      >> OK!!
      MOUNT/UNMOUNT    >> OK!!
      ERASE            >> OK!!
      MODE SELECT      >> OK!!
      POSITION TO ELM  >> OK!!
      MODE SENSE       >> OK!! Current Volume = 0
              Write Retry Block Num  (start) = 0
              Read Retry Block Num   (start) = 0
              Bad Spot Num           (start) = 0
              Read Retry Num         (start) = 0
      WRITE            >> 3
      WRITE FILEMARKS  >> 3
      REWIND           >> OK!!
      READ             >> 3
      VERIFY           >> 3
      SPACE            >> 3
      POSITION TO ELM  >> OK!!
      MODE SENSE       >> OK!!        Current Volume = 1
      WRITE            >> 3
      WRITE FILEMARKS  >> 3
      REWIND           >> OK!!
      MODE SENSE       >> OK!!        Current Volume = 1      VOLUME
position check OK !!
      LOAD/UNLOAD      >> OK!!
              Write Retry Block Num  (end) = 0
              Read Retry Block Num   (end) = 0
              Bad Spot Num           (end) = 0
              Read Retry Num         (end) = 0
Finish Time: 18:08:13
```

Operations

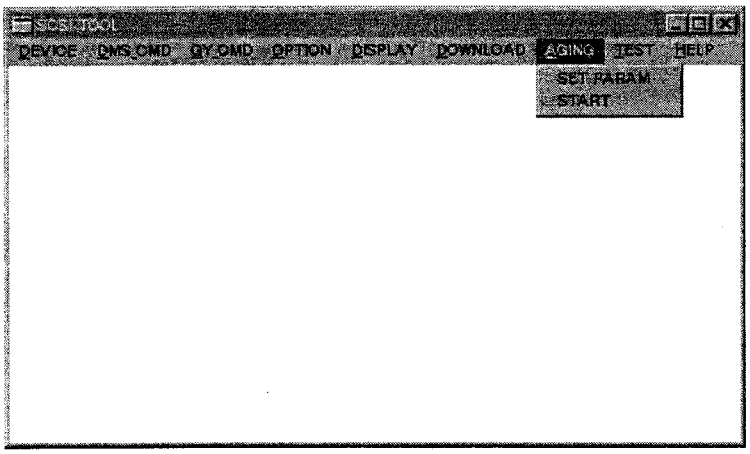
Describes the method of operating of this command

1. Preparations

Be sure to execute "SCAN SCSI" before executing this command.
(If already executed, there is not need to execute it again.)
To change the parameter, perform "1. Parameter Settings".
Any type of cassette can be used.
Load the cassette before starting aging.

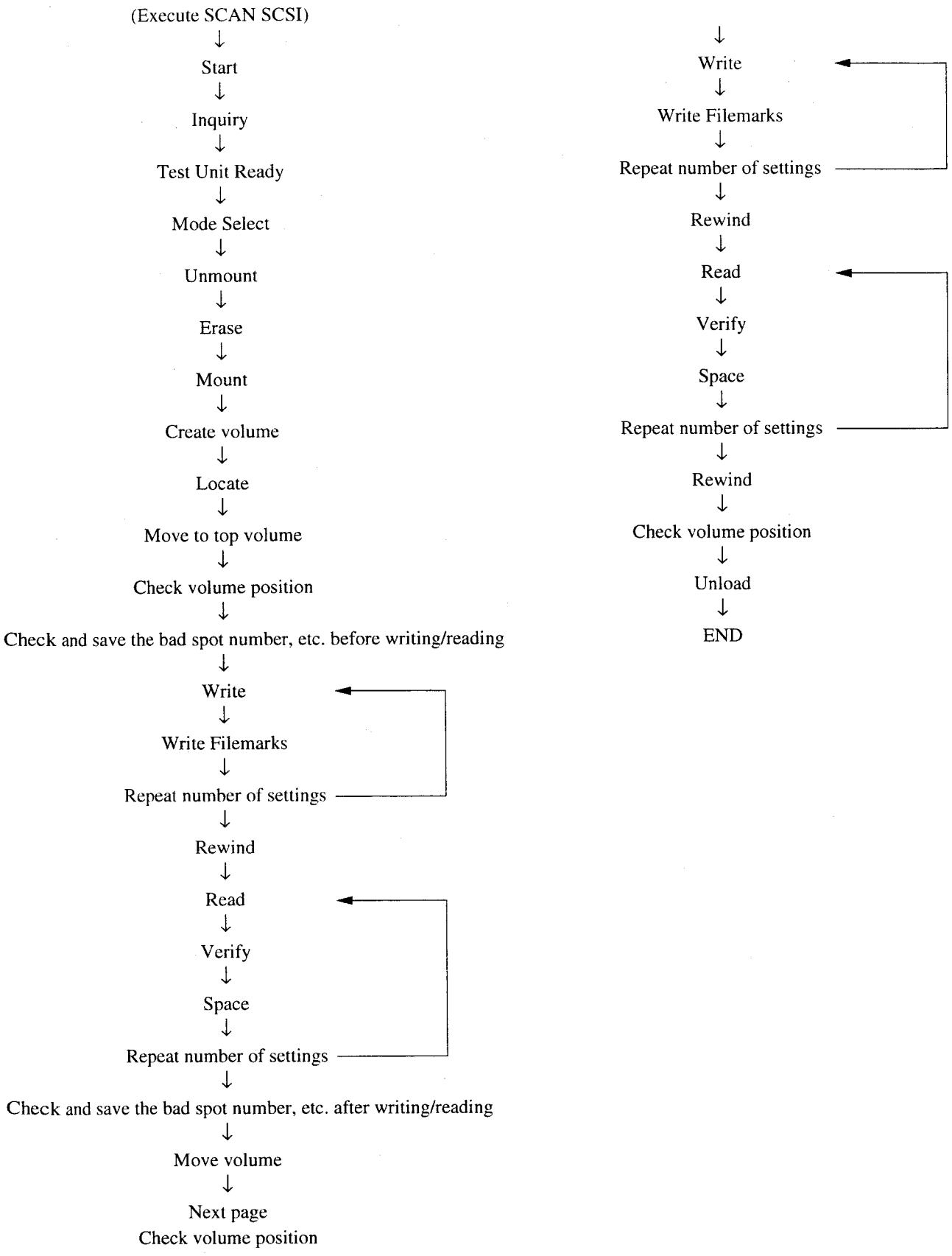
2. Execution

To execute, click "START" in Fig. 11-3
Operates according to "3. Operating Sequence"



<Fig. 11-3> Screen Selected

3. Operating Sequence



4. Process When Error Occurs

Describes the process when errors occur during operations.

When the following contents are output to the log file.

TEST UNIT READY >> ERROR!! <SENSE-KEY [2] - ASC [4] - ASCQ [1]>
TAPE LOADING
Wait until "Loaded" and execute START again.

When the ASPI error occurs

ASPI ERROR!! is output and the process is completed.
This occurs when the "Length" and "Block Size" values for parameter settings are not satisfied.

When the check condition occurs

The code and contents are output and the process is completed.
For details on the codes, refer to the protocol manual.

Example 1:
In this example, "EOM" occurs because the writable area on the tape is limited.
In this case, the process thereafter will be continued as an exceptional case.

WRITE >> ERROR!! <SENSE-KEY [0] - ASC [0] - ASCQ [0]>
EOM bit ON

Example 2:
In this case, the details are output and the process is stopped.
WRITE >> ERROR!! <SENSE-KEY [5] - ASC [20] - ASCQ [00]>
INVALID COMMAND

1-13. General Function Check using the SCSI Control Function

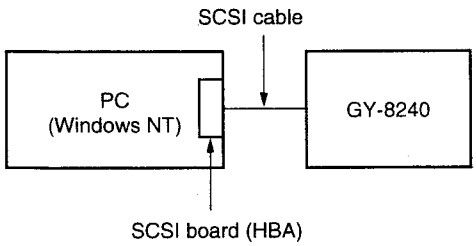
The test procedure of GY-8240UWD by Scsichk for Windows NT

1. Preparation

1. Windows NT (4.0) PC with SCSI I/F board (HBA (Ultra wide differential)).
   Either of following items is recommended.
   - Qlogic QLA1041
   - ADAPTEC AHA-2944UW
2. GY-8240UWD (with terminator)
3. SCSI cable (P-cable for differential)
4. DTF-2 cassette (L or S cassette)
5. The floppy disk containing "Scsichk.exe" and the test Script.

2. Connection

Connect the GY-8240UWD and PC with a SCSI cable.



3. Starting the hardware

1. Turn on the GY-8240UWD.
2. If "No Tape" is displayed on the LCD, turn on the PC.

4. Setting up the GY-8240 UWD

1. Press the [SELECT] button on the front panel of the GY-8240UWD.
2. Press the [↓] button several times until the SETUP menu appears, then press the [ENTER] button.
3. Press the [↓] button several times until "Unload" appears, then press the [ENTER] button.
4. Press the [↑] or [↓] button to set to "NORM", then press the [ENTER] button.
5. Press the [↓] button several times until "Auto load" appears, then press the [ENTER] button.
6. Press the [↑] or [↓] button to set to "OFF", then press the [ENTER] button.
7. Press the [ESC] button several times until the Top menu appears
8. Turn OFF the power, then turn it ON again.

5. Installing (Not necessary if it has already been installed)

1. Insert the floppy disk into the floppy disk drive.
2. Copy the Scsichk.exe file and test script contained in the floppy disk onto the appropriate directory in the C drive.
3. Make a shortcut if the Scsichk.exe file is copied to somewhere other than the desktop.

6. Starting

Double-click the Scsichk icon to start the Scsichk.

7. Preparation for the test

1. Click "DEVICE" on the menu bar.
2. Click "SCAN SCSI" on the DEVICE menu to display the SCSI device connecting the GY-8240UWD (Confirm that the GY-8240 is displayed on the specified ID).
3. Click "SELECT DEVICE" on the DEVICE menu.
4. Select the GY-8240UWD to be tested in the Tape Device (GY), then click the OK button.
5. Insert the DTF-2 cassette into the GY-8240UWD.
6. When "Unloaded" or "Format?" appears on the LCD of the GY-8240UWD, click "GY_CMD" on the menu bar to display the GY command menu.
7. Click "TEST UNIT READY" on the GY command menu.
8. Repeat steps (6) and (7) until the result turns "OK".

8. Selecting the script and executing the test

1. Click "TEST" on the menu bar.
2. Position the cursor to "SEQUENCE", and click "INPUT FILE".
3. Turn the other Radio button ON.
4. Click the refer button to display the file.
5. Change to the directory where the script for the test has been copied.
6. Click the copied test script, then click the OPEN button.
7. Click the OK button.
8. Click "TEST" on the menu bar.
9. Position the cursor on "SEQUENCE" on the TEST menu, then click "START".
10. The sequential test is executed and the result is displayed.
11. The cassette is automatically ejected after the test is completed. (It takes for approximately 15 minutes to complete the test.)

9. Verification and termination

1. Confirm there is no "mismatch" error during execution.
2. Click the "☒" to the upper right of Scsichk to close.

Reference : The test script contents

The test executes following commands in order.

Initialize the tape
- Erase
- Mount

Write (fixed block length)
- Rewind
- Mode Select (block size-32 k Byte fixed)
- Write (10 block)
- Write (10 block)
- Write Filemarks (FM × 1)
- Write (10 block)
- Write (10 block)
- Write Filemarks (FM × 1)
- Write (10 block)
- Write Filemarks (FM × 1)
- Write (10 block)
- Write Filemarks (FM × 1)
- Write (10 block)
- Write (10 block)
- Write Filemarks (FM × 1)
- Write (10 block)
- Write (10 block)
- Write Filemarks (FM × 1)
- Rewind

Simple Read
- Rewind
- Mode Select (block size-32 k Byte fixed)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)

Space
- Rewind
- Mode Select (block size-32 k Byte fixed)
- Space (10 block)
- Read Position
- Space (FM × 1)
- Read Position
- Space (FM × 2)
- Read Position
- Read (10 block)
- Read Position
- Space (FM × −1)
- Read Position

Retention
- Rewind
- Unmount
- Load (Retention)
- Mount

Read after Retention
- Rewind
- Mode Select (block size-32 k Byte fixed)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)

Recover
- Rewind
- Unmount
- Recover
- Mount

Read after Recover

- Rewind
- Mode Select (block size-32 k Byte fixed)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)
- Read (10 block)
- Read (10 block)
- Read (FM error)

Unload

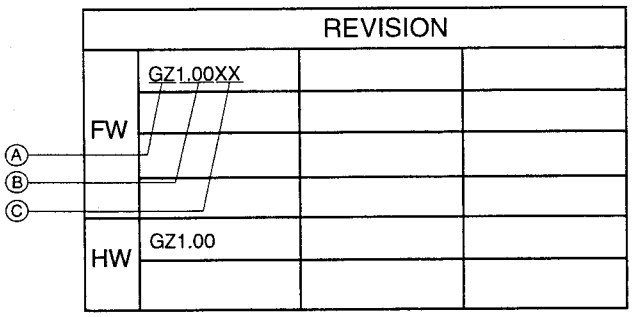
- Unload

1-14. Revision Label

1-14-1. Revision Label for Firmware/Hardware

The revision label affixed on the rear panel of GY-8240 series bears the version of the firmware and hardware of the unit.When the firmware or hardware is upgraded or changed specifications, change of the revision number may be required. When changed, write the revision number (the new version number of the firmware/hardware) in the right column and cross off the predecessor in the left column by double slant lines.
(Indication will be changed ; 1: xx → 1.99, 1 : xx → 2.yy →)
The following is the discription about the contents listed on the revision label.

a) Revision Label



Meanings

FW: Firmware
HW: Hardware

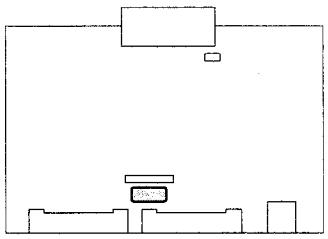
Ⓐ Model Name
GY..... GY-2120 series
GZ..... GY-8240 series
DI ..... DIR-240 series
DM .... DMS-B9 series
Ⓑ Revision No. of the Firmware/Hardware
(Total version number of the unit)
Ⓒ Firmware Destination
XX : XX-Capable model
-P : Patch Version

1-14-2. Revision Label for Board

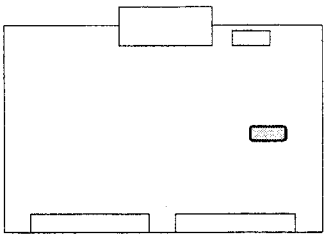
The revision labels are affixed on the boards. The affixed revision label indicaton will be changed Rev. A → Rev. B → Rev. C.

(Revision Label affixed on the board)

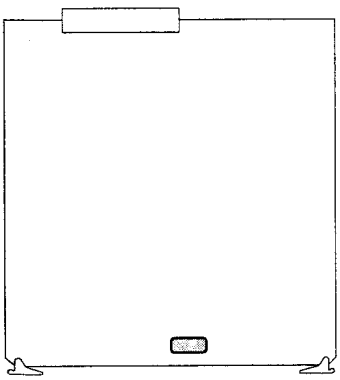




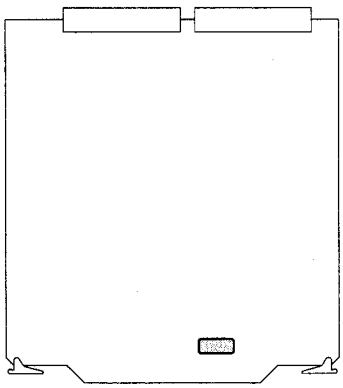
IF-780 board (A side)



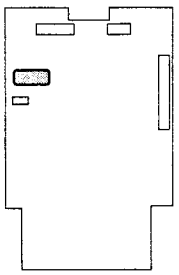
SCS-28 board (A side)



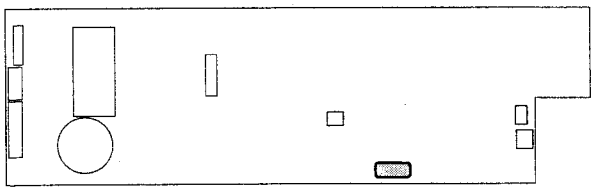
DPR-160 board (A side)



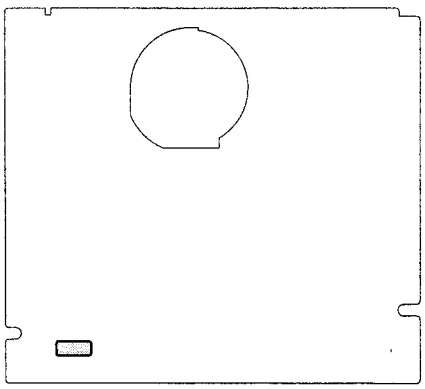
FM-75 board (A side)



CT-205 board (A side)



DSP-90 board (A side)



SV-205 board (B side)

1-15. Update of the Firmware

This unit is equipped with a dedicated update file to update the internal firmware.
To update the firmware, following four methods are provided.
(1) Update with the SCSI tool
(2) Update with the serial port
(3) Update with the dedicated cassette
(4) Update with the network (ftp)

For (1), refer to "1-12. SCSI Control Software scsitool.exe".
For (2), (3) and (4), refer to the descriptions in this section.
Select the best method according to the usage environment.
The four methods differ in length of time to update. (1) is shortest, then (3), and then (4). (2) is longest.

Note

Completing the update, the internal log information is cleared regardless of the update method. If the internal log information is necessary, record log before executing update.

1-15-1. Update with the serial port

Connecting and setting the unit

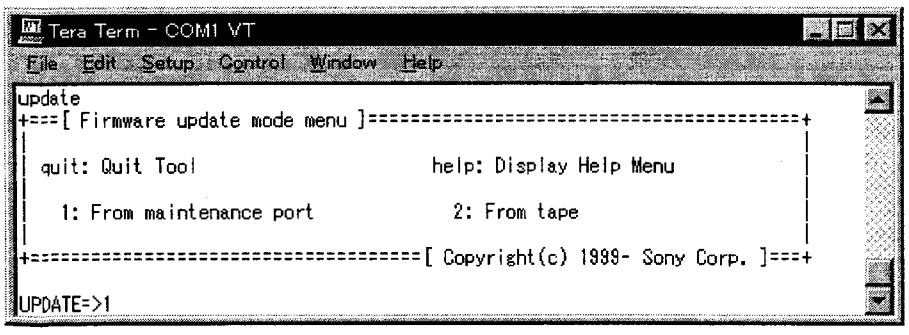
1. Connect the OPTION1 port of this unit to the serial port in the PC with a RS-232C cross cable.
2. Make a setting of the RS-232C port in the PC as follows.

Setting item	Setting value
Baud rate	38400 bps
Parity	none
Flow control	none
Stop bit	1 bit
Data bit length	8 bit

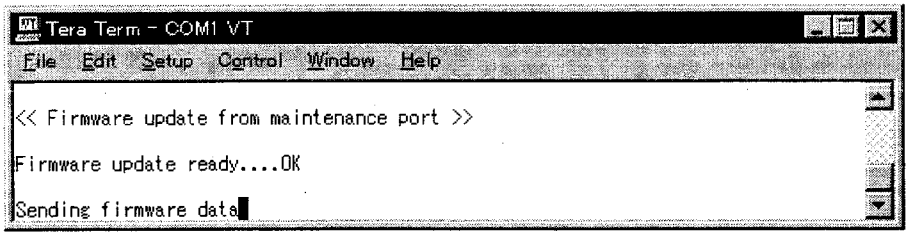
Updating

In the following method, a terminal emulator Tera Term is used.

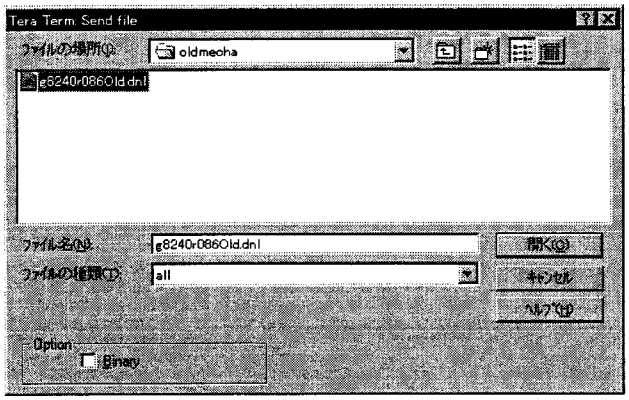
1. Copy the updated data (in this example, the data is "g8240r0860ld.dnl") to the PC.
   (For example, copying the data from the ftp sever via a network.)
2. Start the Tera Term.
3. Enter "UPDATE" in the starting display of this unit to enter the UPDATE mode.
   (As for UPDATE mode, refer to Section 5-5.)


Tera Term - COM1 VT
File Edit Setup Control Window Help
update
+===[Firmware update mode menu]===+
| quit: Quit Tool help: Display Help Menu |
| 1: From maintenance port 2: From tape |
+=====================================[Copyright(c) 1999- Sony Corp.]===+
UPDATE=>1

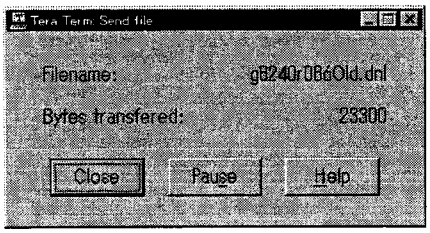
4. Enter "1" in the PC and press the ENTER key, then select "UPDATE from the maintenance port".
   The display below appears.



5. Select "Send file..." from the file menu, then select the file for updating.



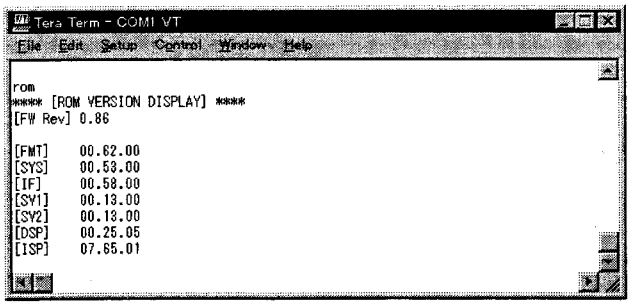
6. Press "Open" or the ENTER key to transfer the file to this unit.



After the transfer is completed, the firmware is automatically updated as following order.
DSP CPU → SV1 CPU → SV2 CPU → SYS CPU → IF CPU → FMT CPU
After the updatelis completed, this unit will be reactivated.

Confirming

7. Enter " rom" in the PC and press the ENTER key.
   The display below appears.



Check that the firmware revision and ROM version are updated.

1-15-2. Update with DTF-2 Cassette

Updating

1. Open the door of the front panel and press the SELECT button.
   The LCD display turns as below, then enter the menu selection display.

Select menu CUSTOM menu

2. Select the UPDATE menu by using "⇧" and "⇩" button, then press the ENTER button.
   The LCD display turns as below.

Select menu UPDATE menu	→	UPDATE menu:1 From Tape

3. Select "From Tape" in UPDATE menu:1, then press the ENTER button.
   The LCD display turns as below.

UPDATE menu:1 Update OK?

4. Press again the ENTER button for update operation.
   The LCD display turns as below.

Insert FW-UPDATE Tape

5. Insert the dedicated cassette in this unit.
   The firmware is automatically updated in the following order.
   DSP CPU → SV1 CPU → SV2 CPU → SYS CPU → IF CPU → FMT CPU
   After the update is all completed, the cassette is ejected.

Confirming

6. Select the ROM menu by using "⇧" and "⇩" button and press the ENTER button.
   The LCD display turns as below.

Select menu ROM menu	→	ROM menu:1 Fw revision

7. Select "FW revision" in the ROM menu:1, then press the ENTER button.
   Firmware revision is displayed on the LCD.
   Check that the firmware is updated to the corresponding revision.

FW revision X.XX

8. Press the ESC button.

ROM menu:1 Fw revision	→	ROM menu:2 ROM version

9. Select "ROM Version" in the Rom menu:2 by using "⇧" and "⇩" button, then press the ENTER button.
   The ROM version of the CPU is displayed on the LCD.
   Check the ROM version of every CPU using the "⇧" and "⇩" button.

ROM version FMT [XX.XX.XX]

1-15-3. Update with the Network (ftp)

Note

To operate the update with the network (ftp), be sure to connect this unit to the network.

1. Enter "ftp [IP address]" from the MS-DOS prompt of the PC connected to the network.
2. Enter the login name and the password as follows.
   login : sony
   password : gydir
3. After login with ftp, enter "bin" following the prompt "ftp>" to set to the binary mode.
4. Following the prompt "ftp>", enter "put␣[updated file name]␣rom_all".
   The file is transferred from the ftp server.
   Note
   When the error message appears during the file transfer, perform the procedures following the list below.
5. After the transfer is completed, enter "quit" following the prompt "ftp>".
   Consequently, the firmware is automatically updated in the following order.
   DSP CPU → SV1 CPU → SV2 CPU → SYS CPU → IF CPU → FMT CPU
   After the update is all completed, this unit will be reactivated.
6. Check that the firmware revision and the ROM version are updated.
   (As for confirming method, refer to Section 1-15-1 or 1-15-2.)

Handling the ftp update errors

Message	Handling
"331 Password required for sony."	Enter the correct password. The password of "sony" is "gydir", unchangeable.
"425 Can't open data connection."	Perform the operation again. Turn the power OFF and then ON.
"450 File busy. Requested file action not taken."	Set the Telnet/Serial maintenance port to the top menu.
"500 Syntax error, command unrecognized."	Perform the operation again.
"501 Syntax error in parameters or arguments."	Perform the operation again.
"502 Command not implemented."	Use the correct command.
"504 Command not implemented for that parameter."	Use the correct parameter.
"530 Not logged in."	Operate login. Normally such an error does not arise.
"550 [file name] No such file or directory."	Use the correct file name. The files are log_all and rom_all only.
"500 user not found."	Use the correct user. The user is only "sony", addition and change are not permitted.

Section 2
Periodic Maintenance and Inspection

2-1. Periodic Check

To make the most of the functions, fully realize performance of the unit, lengthen the life of the unit and tape, a periodic check is recommended.
Write value of "Hours Meter" (the value which would not be reset) into the Service Record Label attached to the back of top panel at service of periodic maintenance.
And make reference to this service record for decision on the timing of next check.

2-1-1. Hours Meter

The hours meter can be displayed on the terminal screen of a personal computer (PC) connected to RS-232C port of this unit. Perform a periodic check with this hours meter as a reference.

1. Display procedure

1. After entering "DIAG" from the PC connected to this unit, start the Self Diagnosis mode by pressing the enter key.
   "DIAG =>" is displayed as a prompt.
2. After entering "5" as a command, press the enter key.
   The value of "Hours Meter" is displayed on the terminal display of the PC.
3. When quitting the Self Diagnosis mode, enter "QUIT" on the PC and press the enter key.

2. Contents of display

	HOURS METER	DESCRIPTION
①	Operation Hours	Accumulated operation hours *1
②	Drum Run Hours	Accumulated drum running hours *2
③	Thread Counter	Accumulated threading/unthreading times *3
–	Drum Run-1 Hours (res)	Accumulated drum running hours 1*2 (Make resetting after the drum replacement with Hours Meter Clear command.)
–	Drum Run-2 Hours (res)	Accumulated drum running hours 2*2 (It will be reset automatically by the use of the cleaning tape.)
–	Thread Counter-1 (res)	Accumulated threading/unthreading times *3 (It is possible to reset by the Hours Meter Clear command.)
–	Cleaning (times)	Accumulated rotary head cleaning operation times
–	Cleaning-1 (times)	Accumulated rotary head cleaning operation times (It is possible to reset by the Hours Meter Clear command.)

*1: Accumulated hours when the power of the unit is on.
*2: Accumulated hours when the drum rotates in the threading end state.
*3: A definition of threading operation is as follow:
Unthreading end state → Threading end state → Unthreading end state → ...

3. Accuracy of hours meter

This unit does not use a battery backup CPU nor any special device for storing the hours meter data.
The hours meter data stored contains a small amount of allowable error.
This unit automatically stores hours meter data in the flash memory so that the storage interval becomes geometric reality.
The nth storage later from the power ON state is performed 1.5^{n-1} minutes from the previous storage.
The maximum interval is 24 hours. The data will be saved in the memory after extrapolation arithmetic of half of the next storage interval.
The error of the hours meter data stored is about ±20% (maximum) when n is large.

2-1-2. Periodic Check List

Perform periodic check in accordance with the table.
The replacement time shown in the table is not the guarantee term of parts.

Note:

The part marked with "↓" in the table is replaced simultaneously with when the part in the column below its mark is replaced.
The "R" mark in this table indicates the replacement timing of parts.

Item	Hours Meter *1	Inspetion Hours (h) 5000	10000	Replacement Parts Part Name	Parts No.	Q'ty	Procedure
Drum Block							
Upper Drum *2	②	R	↓	UPPER DRUM ASSY (DDR-58-R)	A-8324-483-A	1	Refer to Section 3-2.
Brush/Slip Ring	②	R	↓	BRUSH SR4 ASSY (RP)	A-8312-151-	1	Refer to Section 3-4.
Drum *2	②	–	R	DRUM ASSY (DDH-58A-R)	A-8324-482-A	1	Refer to Section 3-3.
Cleaners							
Cleaning Roller *3	②	Replace when used 1,000H.	↓	CLEANING ROLLER ASSY	X-3605-794-	1	Refer to Section 3-5.
				CAP	3-625-203-	1	
Rotary Head Cleaner	②	–	R	W CLEANER ASSY (RP)	A-8325-415-A	1	Refer to Section 3-5.
CTL/TC Head Cleaner *3	②	Replace when used 1,000H.		CL ARM ASSY	X-3605-789-	1	Refer to Section 3-6.
Tape Running System							
Pinch Roller *3	②	R	R	PINCH ARM ASSY	X-3605-881-	1	Refer to Section 3-9.
CTL/TC Head	②	–	R	AT HEAD ASSY	A-8267-422-	1	Refer to Section 3-8.
Capstan Motor	②	R	R	SCV16/J-RP	A-8325-190-A	1	Refer to Section 3-11.
Driving System							
Pinch Solenoid	②	–	R	PINCH PRESS ASSY	A-8324-938-	1	Refer to Section 3-10.
Reel Motor	②	–	R	REEL MOTOR TABLE (T) ASSY (RP)	A-8326-890-A	1	Refer to Section 3-14.
				REEL MOTOR TABLE (S) ASSY (RP)	A-8326-889-A	1	
Others							
Fan Motor (Power supply)	①	Replace when used 40,000H.		DC FAN	9-885-001-66	1	Refer to Section 1-8-2.
Fan Motor (Rear panel)	①	Replace when used 50,000H.		DC FAN	1-698-779-	1	Refer to Section 3-25.

*1: Refer to Section 2-1-1.
*2: Do not subject this unit to high humidity or excessive dust. This may shorten the life of these parts. Therefore, it is recommended to use this unit in an air-conditioned and dust-free environment and store the cassette at ordinary temperature and humidity.
*3 : The life of these parts may be shortened depending on the operating condition of this unit or the operating environment.

If the unit is used for special application in which the cassette tape is ejected and inserted 50 times or more a day, the parts blow are added as the parts to be replaced.

Item	Hours Meter *1	Inspetion Hours (h) 5000	10000	Replacement Parts Part Name	Parts No.	Q'ty	Procedure
Tape Running System							
S Tension Regulator	③	Replace when used 200,000 times.		S TENSION REGULATOR ASSY (RP)	A-8325-409-	1	Refer to Section 3-21.
T Tension Regulator	③	Replace when used 200,000 times.		T-TEN ASSY (RP)	A-8325-410-	1	Refer to Section 3-22.
T Drawer	③	Replace when used 200,000 times.		T DRAWER ASSY (RP)	A-8326-891-A	1	Refer to Section 3-23.
Driving System							
Threading Motor	③	Replace when used 200,000 times.		GEAR BOX ASSY	A-8267-424-	1	Refer to Section 3-19.
Threading Ring	③	Replace when used 200,000 times.		THREADING RING ASSY	A-8325-446-	1	Refer to Section 3-20.
Pinch Arm Guard	③	Replace when used 200,000 times.		PA GUARD	3-625-217-	1	
CL Guide Rail	③	Replace when used 200,000 times.		CL GUIDE RAIL	3-624-986-	1	
Brake Solenoid	③	Replace when used 200,000 times.		REEL MOTOR TABLE (T) ASSY (RP) REEL MOTOR TABLE (S) ASSY (RP)	A-8326-890-A A-8326-889-A	1 1	Refer to Section 3-14.
Other							
Cassette Compartment Assy	③	Replace when used 200,000 times.		CASSETTE COMPARTMENT ASSY	A-8326-707-A	1	Refer to Section 1-2.

*1: Refer to Section 2-1-1.

2-2. Cleaning

WARNING

Before cleaning turn the power off and remove the power cord.
Even though the power is switched off, the unit remains partially functioning, so that be sure to remove the power cord to avoid shock hazards.

To make the most of the functions, fully realize the performance of this unit, and to lengthen the life of the unit and tape, clean the components often.

2-2-1. General Information for Cleaning

1. Cautions

- Each block in the mechanical deck consists of a precision part and is adjusted precisely. Be careful not to damage each part and to apply an excessive force during cleaning.
- Do not touch the greased portions during cleaning. If grease attaches to a cleaning cloth, replace the cleaning cloth by new one. If a cleaning cloth smeared with grease is used, grease may attach to the places where it should not.
- Do not insert a cassette before a cleaning fluid completely evaporates after cleaning.

2. Preparation

(1) Turn the power off and remove the power cord.
(2) Remove the top panel. (Refer to Section 1-1.)
(3) Remove the plate MD. (Refer to Section 1-2.)
(4) Remove the cassette compartment. (Refer to Section 1-2.)

2-2-2. Tape Running Surface of Upper Drum and Rotary Heads Cleaning

CAUTION

- Never contact the rotating drum.
  Be sure to turn off the power and wait until the drum comes to a complete stop befer cleaning.
- The rotary heads are the part that can be damaged easily. Be careful not to damage the rotary heads during cleaning.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Note

Do not use a cotton swab to clean the rotary heads.

Procedures

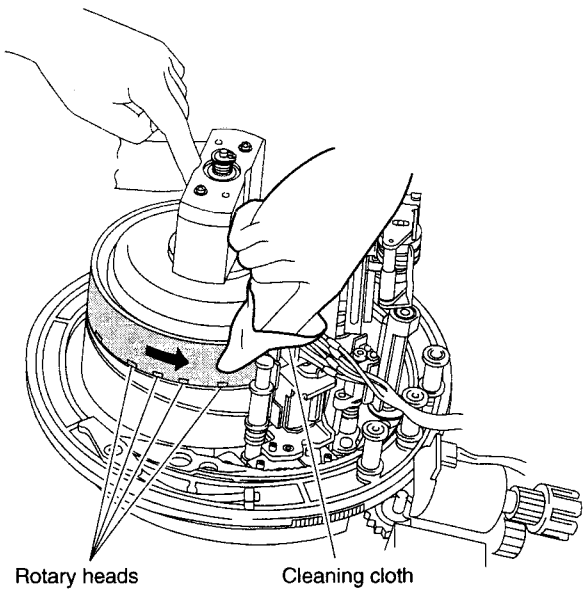
1. Hold the cleaning cloth moistened with cleaning fluid keeping it from becoming wrinkled. And press the cleaning cloth slightly against the rotary heads.

2. Rotate the upper drum slowly counterclockwise two or three turns and clean the rotary heads with the cleaning cloth held.

   Note

   Be sure to rotate the upper drum counterclockwise and clean the rotary heads along the circumference. Do not rotate the upper drum in the direction opposite to the specified direction (clockwise) or clean it in the vertical direction. This may damage the rotary heads and the brush/slipring assembly.

3. After cleaning, wipe it with a dry cleaning cloth two or three times.



Upper Drum's Tape Running Surface and Rotary Heads Cleaning

2-2-3. Tape Running Surface of Lower Drum and Lead Surface Cleaning

CAUTION

Be careful not to damage the lower drum (specially lead surface) during cleaning. Pay careful attention when cleaning the upper edge portion of the lower drum because it is located near the rotary heads.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Skewer or an equivalent (A metallic skewer cannot be used.)

Procedures

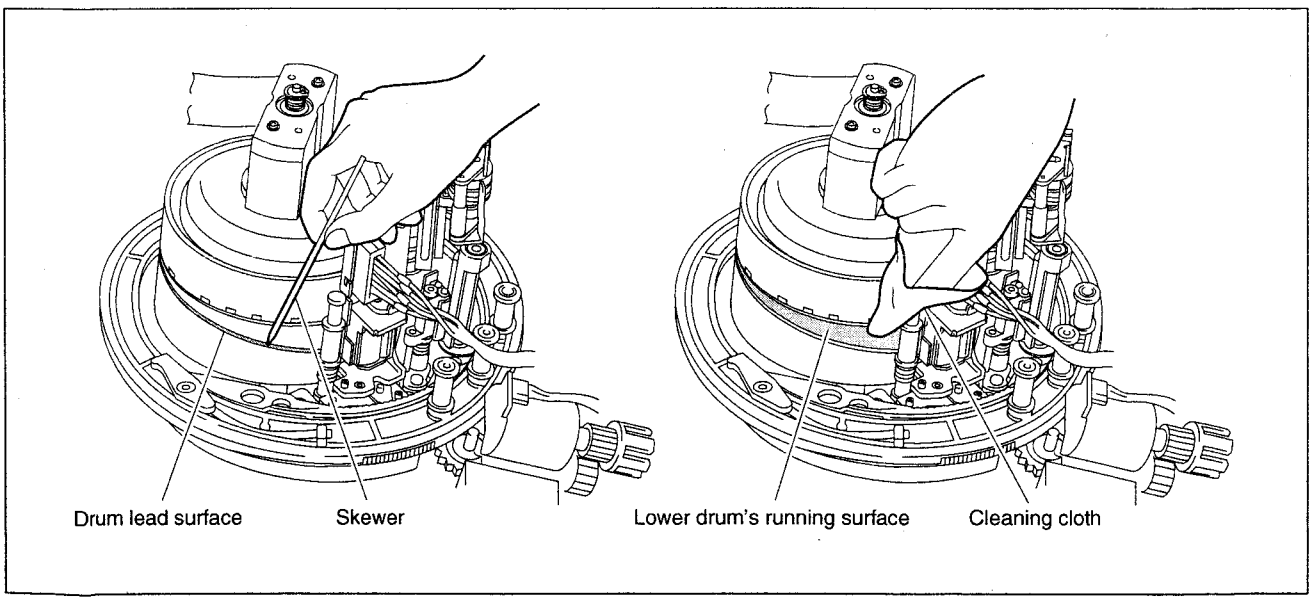
1. As shown in the figure, put a skewer (or an equivalent) along the drum lead surface and remove the magnetic powder.

   Notes

   1. Do not use a metallic skewer instead of the skewer. This may damage the tape running surface.
   2. Tracking may be badly influenced when magnetic powder attaches to the drum lead surface. Remove the magnetic powder completely during cleaning.

2. Clean the drum lead surface and lower drum's tape running surface (shaded portion in the figure) with a cleaning cloth moistened with a cleaning fluid.

3. After cleaning, wipe it with a dry cleaning cloth two or three times.



Lower Drum's Tape Running Surface and Lead Surface Cleaning

2-2-4. Stationary Heads Cleaning

CAUTION

Be careful not to damage the head surface when cleaning the stationary heads.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

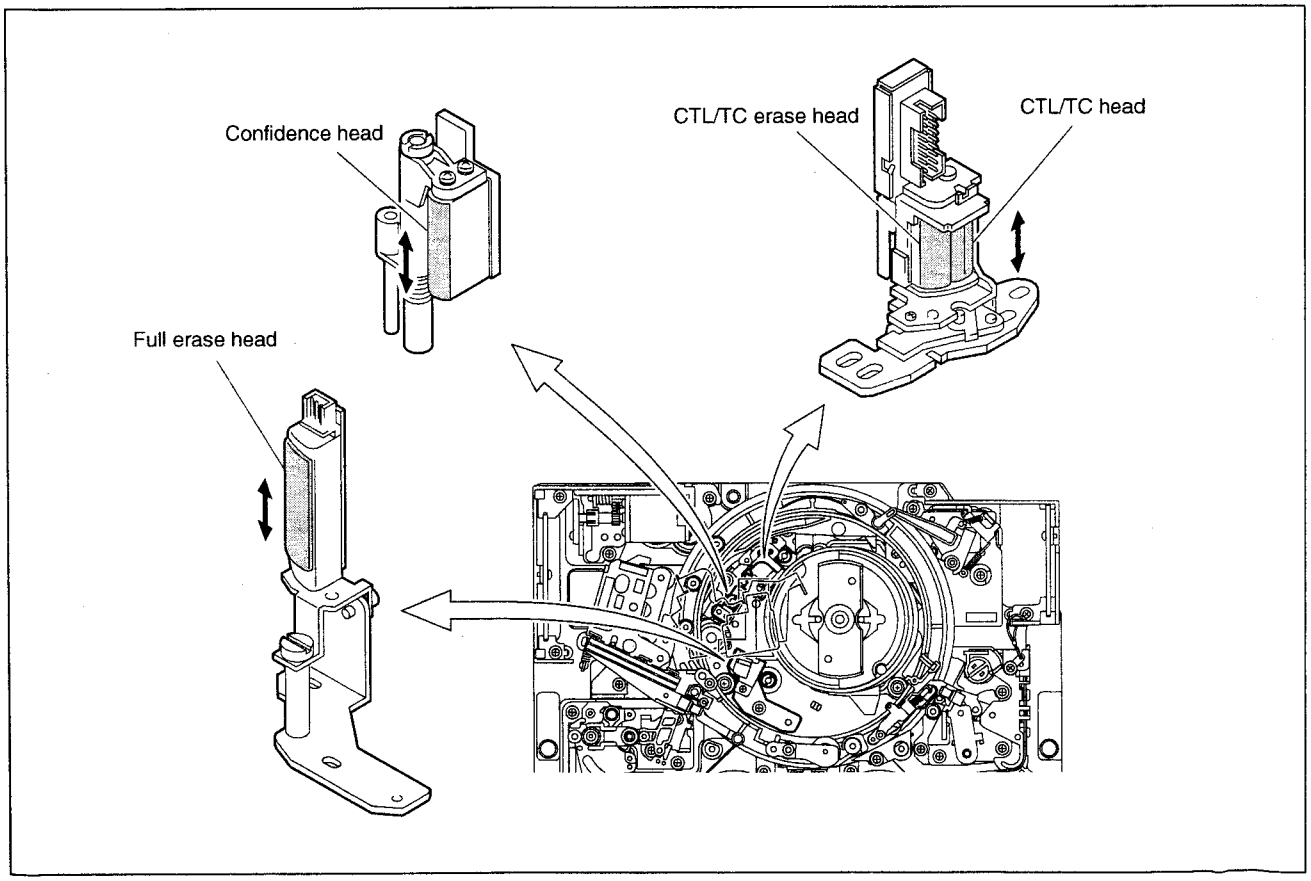
Procedures

1. Clean the tape running surfaces of the CTL/TC head , CTL/TC erase head, confidence head and Full erase head (shown by a shaded portion in the figure) in the vertical direction with a cleaning cloth moistened with a cleaning fluid.

   Note

   An error may occur in the recording or playback when magnetic powder attaches to the head gap portion of each head. Remove the magnetic powder completely during cleaning.

2. After cleaning, wipe it with a dry cleaning cloth two or three times.



Stationary Heads Cleaning

2-2-5. Tape Running System and Tape Cleaner Cleaning

CAUTION

The tape cleaner has a sharp edge. Do not touch the edge with bare hands. Pay careful attention when cleaning the tape cleaner.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Procedures

1. Wipe off the surfaces of the tape cleaner using a paper (such as a sheet of paper of this manual) to remove the magnetic powder adhered on the tape cleaner.

   CAUTION

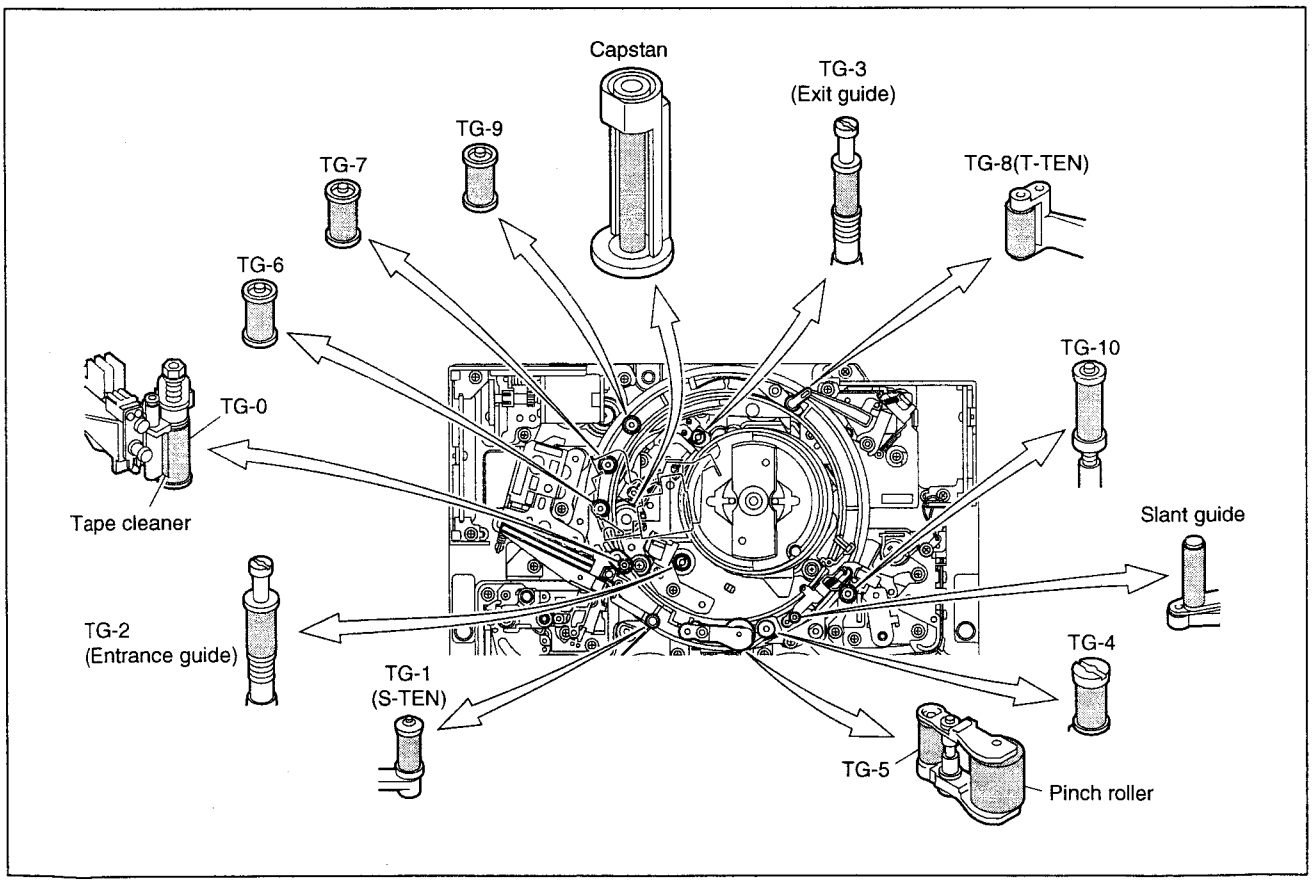
   Do not contact the edge portion of the tape cleaner with bare hands.

   Note

   Do not apply an excessive force to the tape cleaner to avoid damaging it.

2. Clean the tape running surfaces (shaded portions in the figure) of each guide with cleaning cloth moistened with a cleaning fluid.

3. After cleaning, clean it with a dry cleaning cloth two or three times.



Tape Running System and Tape Cleaner Cleaning

2-2-6. Cassette Compartment and Cassette Supports Cleaning

Notes

- Being careful not to apply an excessive force to the compartment block or mirror, clean the cassette compartment.
- Do not use an alcoholic chemical in cleaning of the door and mirror to avoid cracking them.

Tools

- Cloth (or Gauze)
- Vacuum cleaner

Procedure

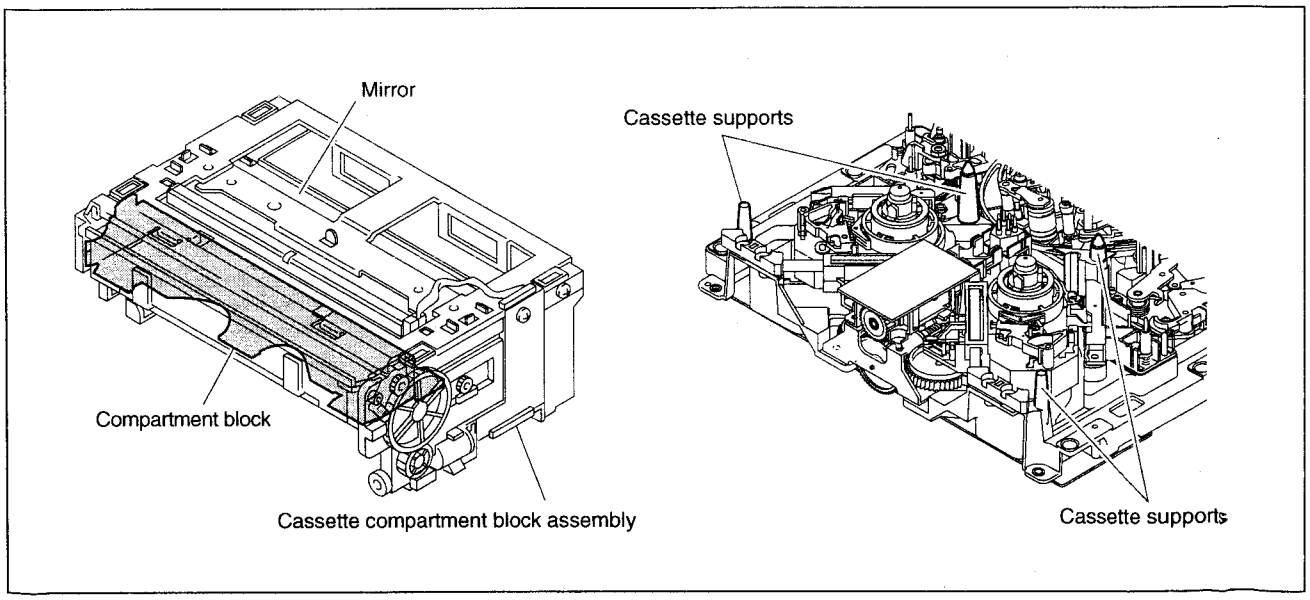
1. Remove the cassette compartment from the unit. (Refer to Section 1-2.)

2. Remove the dust on the cassette compartment from the cassette insertion inlet using a vacuum cleaner.

3. Clean the compartment (shaded portion in the figure) using a dry cloth (or gauze).
   Note
   Do not apply an excessive force to the compartment block.

4. Clean the cassette supports on the mechanical deck using a dry cloth (or gauze).

5. Reattach the cassette compartment. (Refer to Section 1-2.)



Stationary Heads Cleaning

Section 3
Replacement of Mechanical Parts

3-1. General Information for Parts Replacement

3-1-1. Notes

1. Tape Cleaner

CAUTION

Never touch the edge of the tape cleaner with bare hands.
A sharp edge of the tape cleaner may cause a hand cut.
Pay careful attention when replacing or adjusting the peripheral parts.

2. Grease and Oil

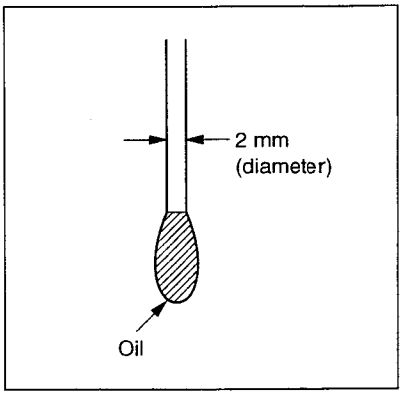
- Do not use ones other than the specified grease and oil. This may cause a trouble or malfunction because of the difference in viscosity or components. Moreover, do not use grease or oil in which dust is mixed. This may cause a trouble or malfunction.

  - Grease (SGL-601): 7-651-000-10
  - Oil: 7-661-018-18

- Apply just enough grease to form a thin film on the surface of the part.
  Any grease left on the surrounding portions must be wiped with gauze or soft cloth.

- A drop of oil is defined as follows:
  About the amount that will remain on the tip of a stick of 2 mm in diameter, as shown in the figure.

- Do not use the grease and oil except for specified portions.



Oil

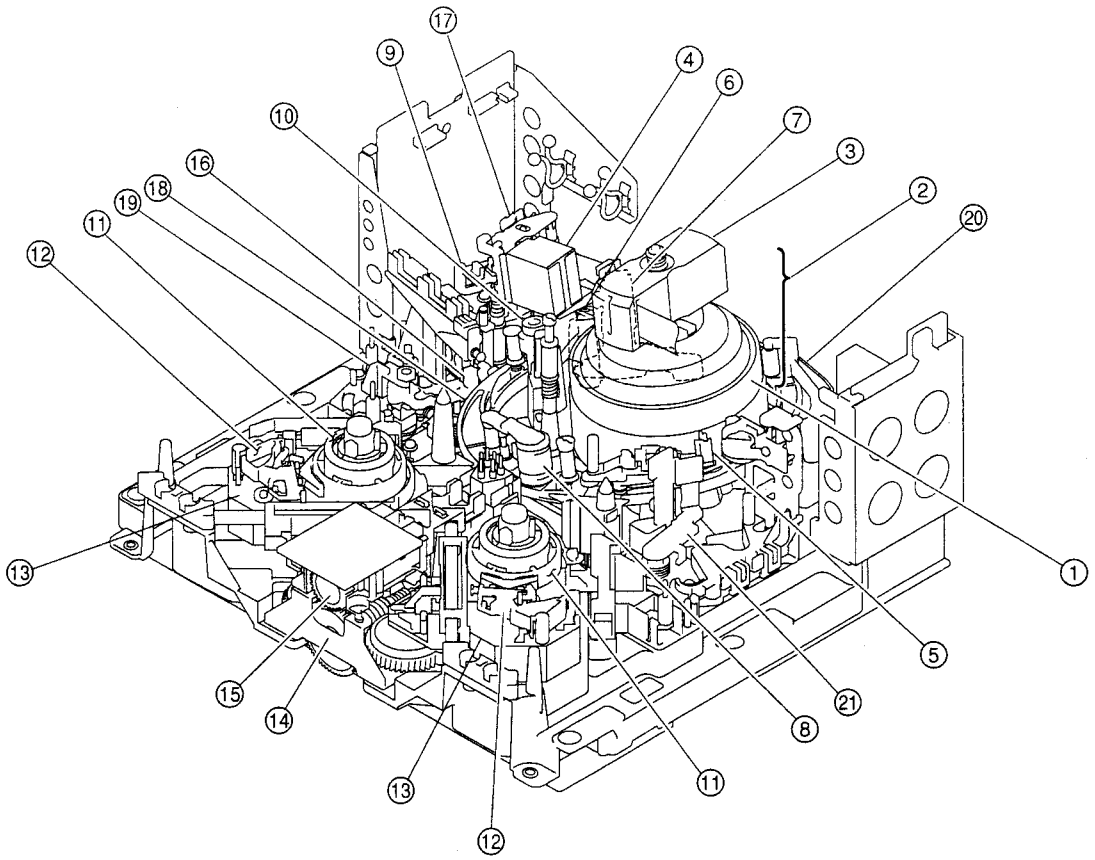
3. Stop Washer

Do not reuse the removed stop washer.

- Stop washer (d = 2.3 mm): 3-669-596-00

3-1-2. Index

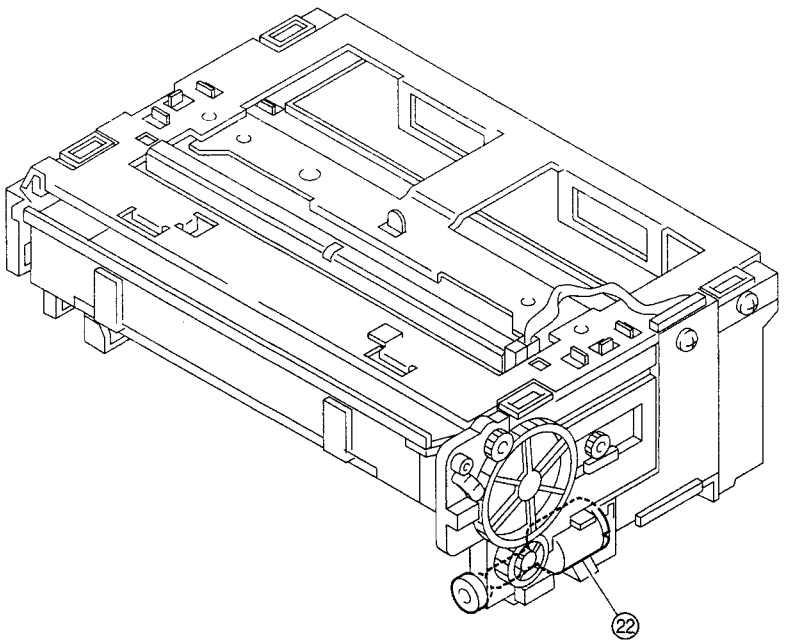
<Mechanical Deck Block>



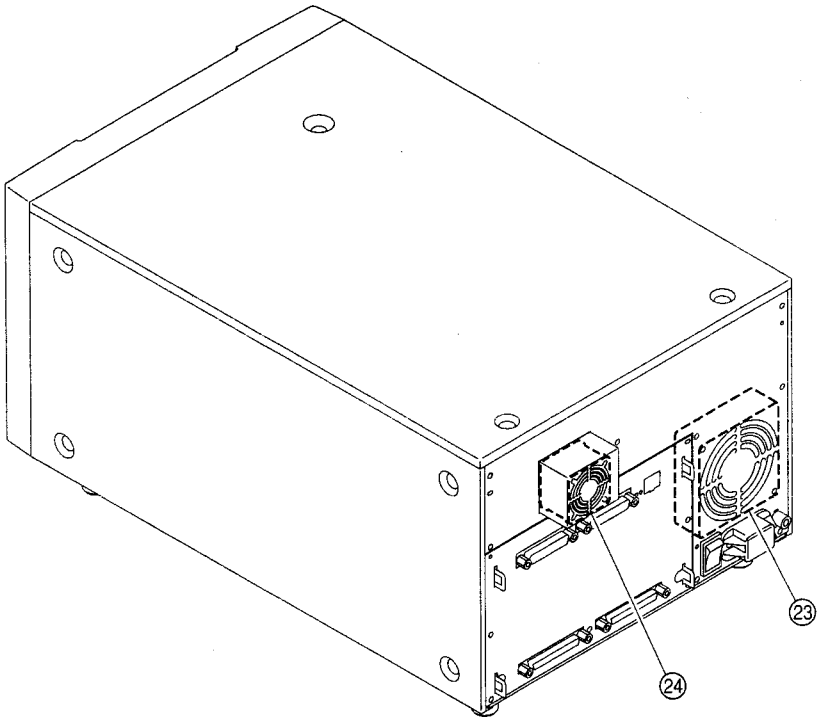
No.	Part Name	Section
①	Upper Drum Assembly	3-2
②	Drum Assembly	3-3
③	Brush Slip Ring Assembly	3-4
④	W Cleaner Assembly	3-5
⑤	CTL/TC Head Cleaner	3-6
⑥	CONFI Head Assembly	3-7
⑦	CTL/TC Head Assembly	3-8
⑧	Pinch Roller	3-9
⑨	Pinch Press Assembly	3-10
⑩	Capstan Motor	3-11
⑪	Reel Table Assembly	3-12

No.	Part Name	Section
⑫	Brake Lining	3-13
⑬	Reel Motor Table Assembly	3-14
⑭	Reel Shift Gear	3-15
⑮	Reel Shift Motor	3-16
–	Tape Guide	3-17
⑯	Tape Cleaner	3-18
⑰	Gear Box Assembly/Threading Motor	3-19
⑱	Threading Ring	3-20
⑲	S Tension Regulator Assembly	3-21
⑳	T Tension Regulator Assembly	3-22
㉑	T Drawer Assembly	3-23

<Overall Block>



No.	Part Name	Section
㉒	Cassete Compartment Motor	3-24



No.	Part Name	Section
㉓	Fan Motor (Rear Panel)	3-25
㉔	Fan Motor (Power Supply)	1-8-2

3-1-3. Threading End Mode and Unthreading End Mode

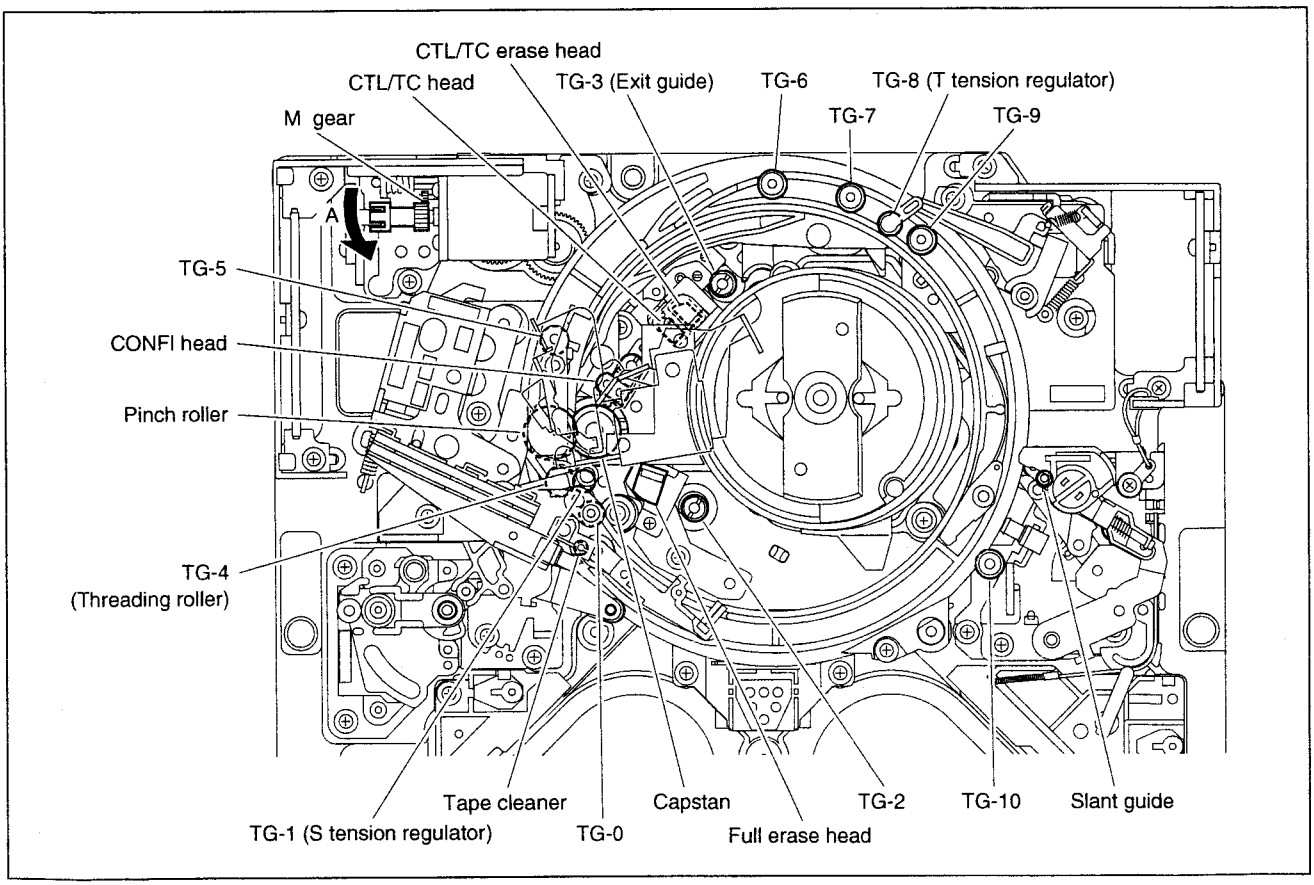
1. Threading End Mode

Threading end mode means that the threading ring rotates counterclockwise, then stops.

There are two ways of putting the unit into the threading end mode with the cassette compartment taken off the unit.

Method ①: With the power turned on, activate DIAG mode operating the PC and execute CH01: Threading Motor Check, then put the unit into the threading end state. (Refer to Section 5-4-13.)

Method ②: Turn the M gear of the gear box assembly in the direction of the arrow A with the power turned off.



Threading End Mode

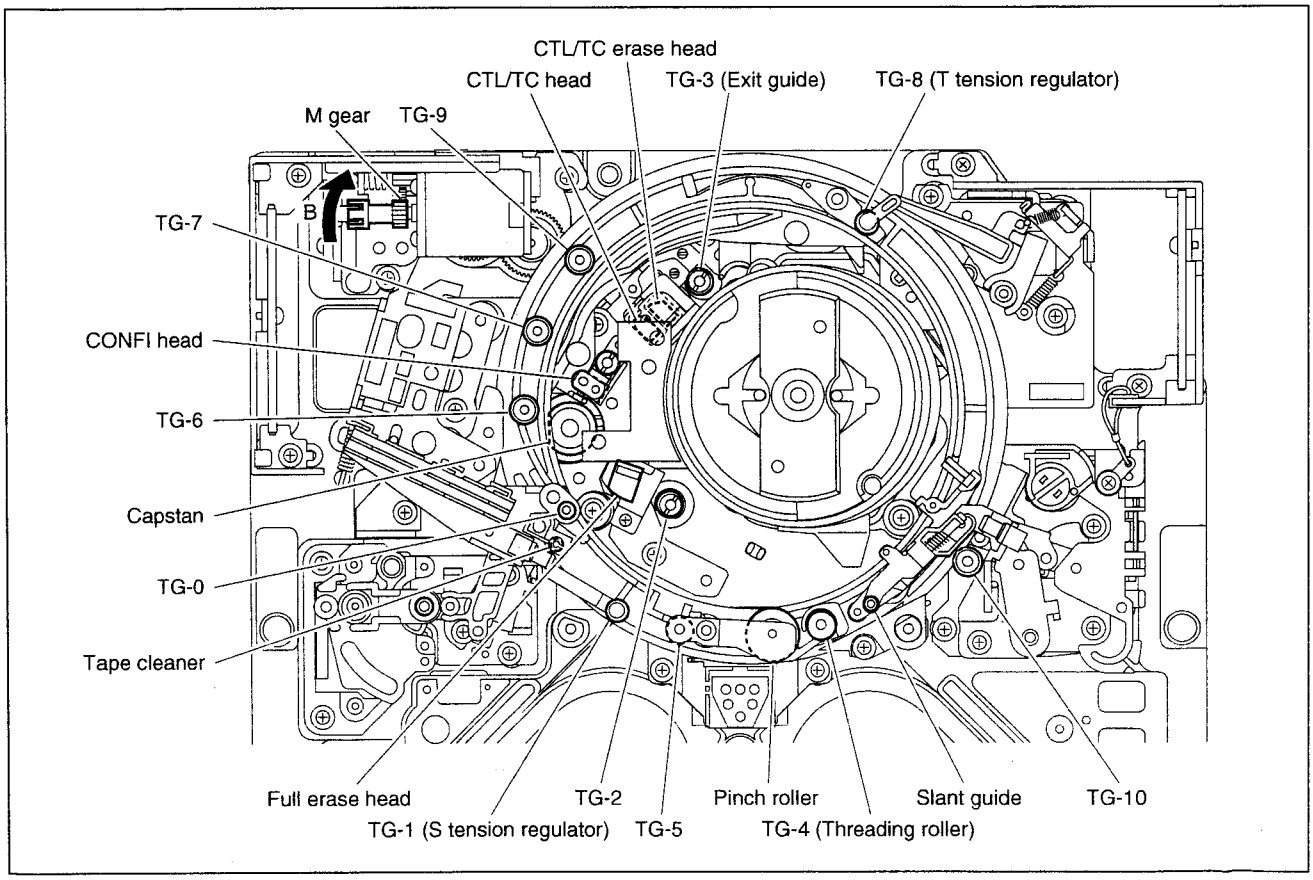
2. Unthreading End Mode

Unthreading end mode means that the threading ring rotates clockwise, then stops. (It is same state as EJECT completion mode.)

There are two methods of putting the unit into the unthreading end mode with the cassette compartment taken off the unit.

Method ①: In the threading end state activate DIAG mode operating the PC and execute CH01: Threading Motor Check, then put the unit into the threading end state. (Refer to Section 5-4-13.)

Method ②: Turn the M gear of the gear box assembly in the direction of the arrow B with the power turned off.



Unthreading End Mode

3-1-4. L Cassette Position and S Cassette Position

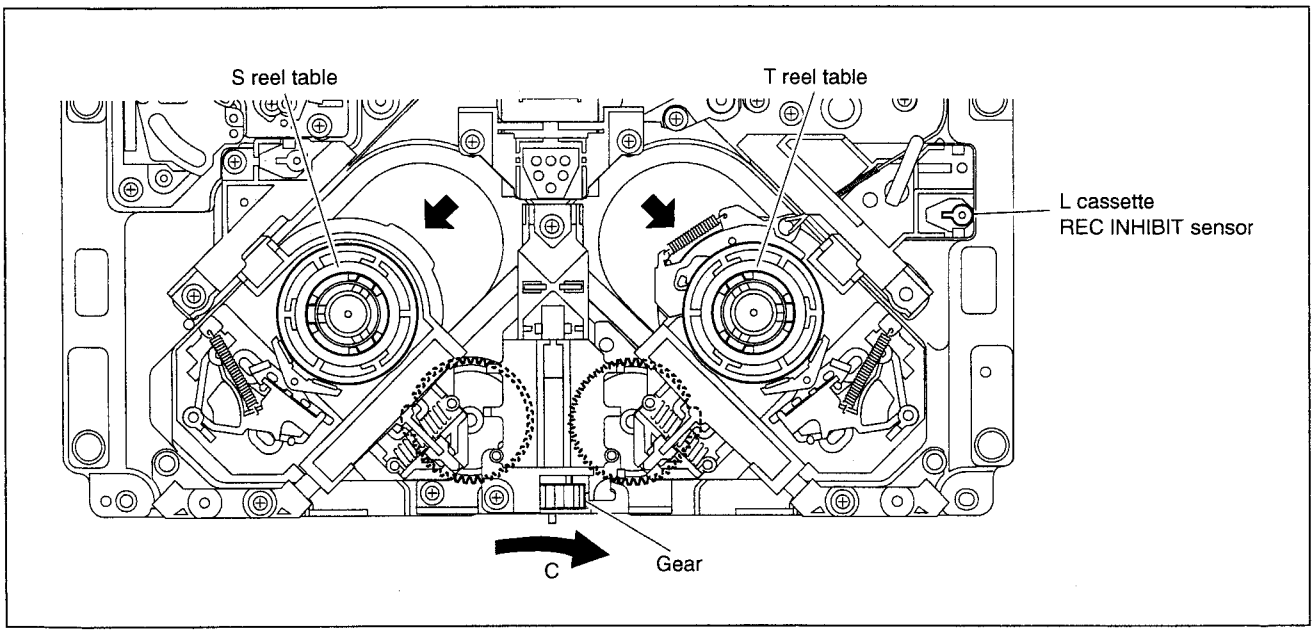
1. L Cassette Position

L cassette position means that the reel tables are in the position of L cassette tape.

There are two methods of putting the reel tables into the L cassette position from the S cassette position with the cassette compartment taken off the unit.

Method ①: With the power turned on, press into the L cassette REC INHIBIT sensor about three seconds.

Method ②: 1. Remove the SE-606 board. (Refer to Section 3-14.)
2. Turn fully the gear of reel shift motor in the arrow C direction.



L Cassette Position

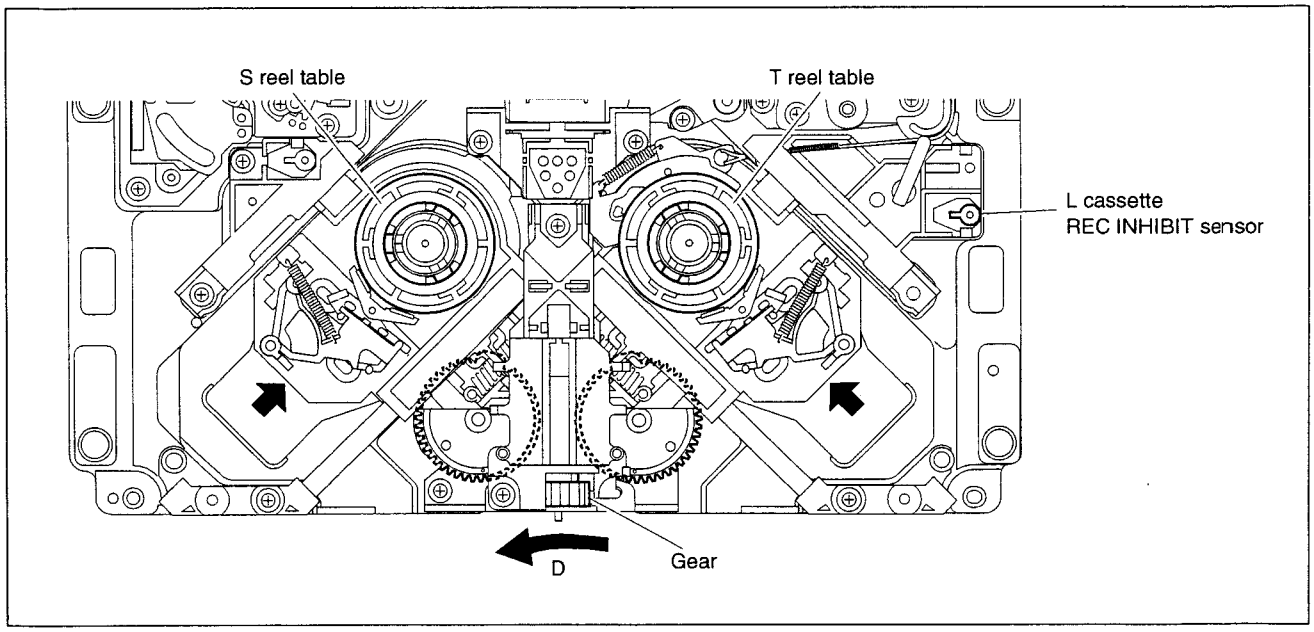
2. S Cassette Position

S cassette position means that the reel tables are in the position of S cassette tape.

There are two methods of putting the reel tables into the S cassette position from the L cassette position with the cassette compartment taken off the unit.

Method ①: With the power turned on, press into the L cassette REC INHIBIT sensor about three seconds.

Method ②: 1. Remove the SE-606 board. (Refer to Section 3-14.)
2. Turn fully the gear of reel shift motor in the arrow D direction.



S Cassette Position

3-2. Upper Drum Assembly Replacement

CAUTION

Never touth the rotating drum.
If you touch the drum with hand or screwdriver, you may get hurt by the rapidly spring drum.

- Make sure that the rotating drum completely stops berore cleaning or replacing parts.
- Never touch the rotating drum during adjusting.

Outline

Replacement

1. Removing the W Cleaner Assembly (Refer to steps 1 and 2 in Section 3-5.)
2. Removing the Brush Slip Ring Assembly (Refer to steps 1 and 2 in Section 3-4.)
3. Removing the Upper Drum Assembly
4. Cleaning
   (Upper Drum Assembly Mounting Surface, Lower Drum Flange Surface, Tape Running Surface, Lead Surface and Contacting Points)
5. Installing the Upper Drum Assembly
6. Installing the Brush Slip Ring Assembly (Refer to steps 4 and 5 in Section 3-4.)
7. Cleaning (Rotary Heads, Upper Drum Tape Running Surface)
8. Installing the W Cleaner Assembly (Refer to steps 4 to 6 in Section 3-5.)

Adjustment after Replacement

9. Confirming the Tape Running (Refer to Section 4-3.)
10. Performing the Auto PG Adjustment
    (3E: Auto PG adjust) (Refer to Section 5-9-6.)
11. Confirming the Tracking (Refer to Section 4-4.)
12. Confirming the Drum Head Height (Refer to Section 4-10.)
13. Confirming the CTL/TC Head Height (Refer to Section 4-5.)
14. Adjusting the CTL/TC Head Position (Refer to Section 5-7.)
15. Confirming the CONFI Head Height (Refer to Section 4-9.)
16. Performing the Playback System All Automatic Adjustment (DTF-2)
    (51: RF PB all adjust (DTF-2)) (Refer to Section 5-9-7.)
17. Performing the Playback System All Adjustment (DTF-1)
    (52: RF PB all adjust (DTF-1)) (Refer to Section 5-9-8.)
18. Confirming the Alignment Tape Playback Error Rate (DTF-2)
    (53: RF error rate (DTF-2, PB Align)) (Refer to Section 5-9-9.)
19. Confirming the Record Error Rate (DTF-2)
    (54: RF error rate (DTF-2 REC Confi)) (Refer to Section 5-9-10.)
20. Confirming the Self REC/PB Tape Playback Error Rate (DTF-2)
    (55: RF error rate (DTF-2 REC/PB)) (Refer to Section 5-9-11.)
21. Confirming the Alignment Tape Playback Error Rate (DTF-1)
    (56: RF error rate (DTF-1 PB Align)) (Refer to Section 5-9-12.)
22. Adjusting the Auto Tracking Amp Gain
    (57 : RF ATF amp gain adjust) (Refer to Section 5-9-13.)
23. Adjusting the RF System Data Save
    (58: RF data save) (Refer to Section 5-9-14.)
24. ATF Circuit Operation Check
    (SV18: ATF operation check) (Refer to Section 5-4-13.)
25. SAT Circuit Operation Check
    (SV19: SAT operation check) (Refer to Section 5-4-13.)

Note

When the rotary head tip is worn or damaged, replace the upper drum assembly. It cannot be replaced only head tip.

Basic Knowledge

Exept in the periodic replacement time, replace the upper drum assembly when a correct RF signal waveform cannot be obtained even if the tracking adjustment is performed.

Tools

• Hexagonal wrench driver (2.5 mm):	7-700-766-04
• Torque screwdriver (6 kg•cm) (JB-5251):	J-6252-510-A
• Torque screwdriver (12 kg•cm) (JB-5252):	J-6252-520-A
• Torque screwdriver's bit (+2 mm, l = 75 mm):	J-6323-420-A
• Torque screwdriver's hexagonal bit (d = 2.5 mm, l = 120 mm):	J-6251-090-A
• Cleaning cloth:	3-184-527-01
• Cleaning fluid:	9-919-573-01
• Upper drum remover:	Supplied with a new repair upper drum

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the W Cleaner Assembly

Remove the W cleaner assembly.
(Refer to steps 1 and 2 in Section 3-5.)

2. Removing the Brush Slip Ring Assembly

Remove the brush slip ring assembly.
(Refer to steps 1 and 2 in Section 3-4.)

3. Removing the Upper Drum Assembly

(1) Insert the hexagonal wrench driver from the screw hole (A) and loosen the screw completely.

Note

The upper drum assembly is fixed with the four fixing screws (C3 × 12) in the screw holes (A). These screws cannot be removed because of stoppers.

(2) Check that the projection of the hexagon screw from the remover's surfase is within 1 mm.

Note

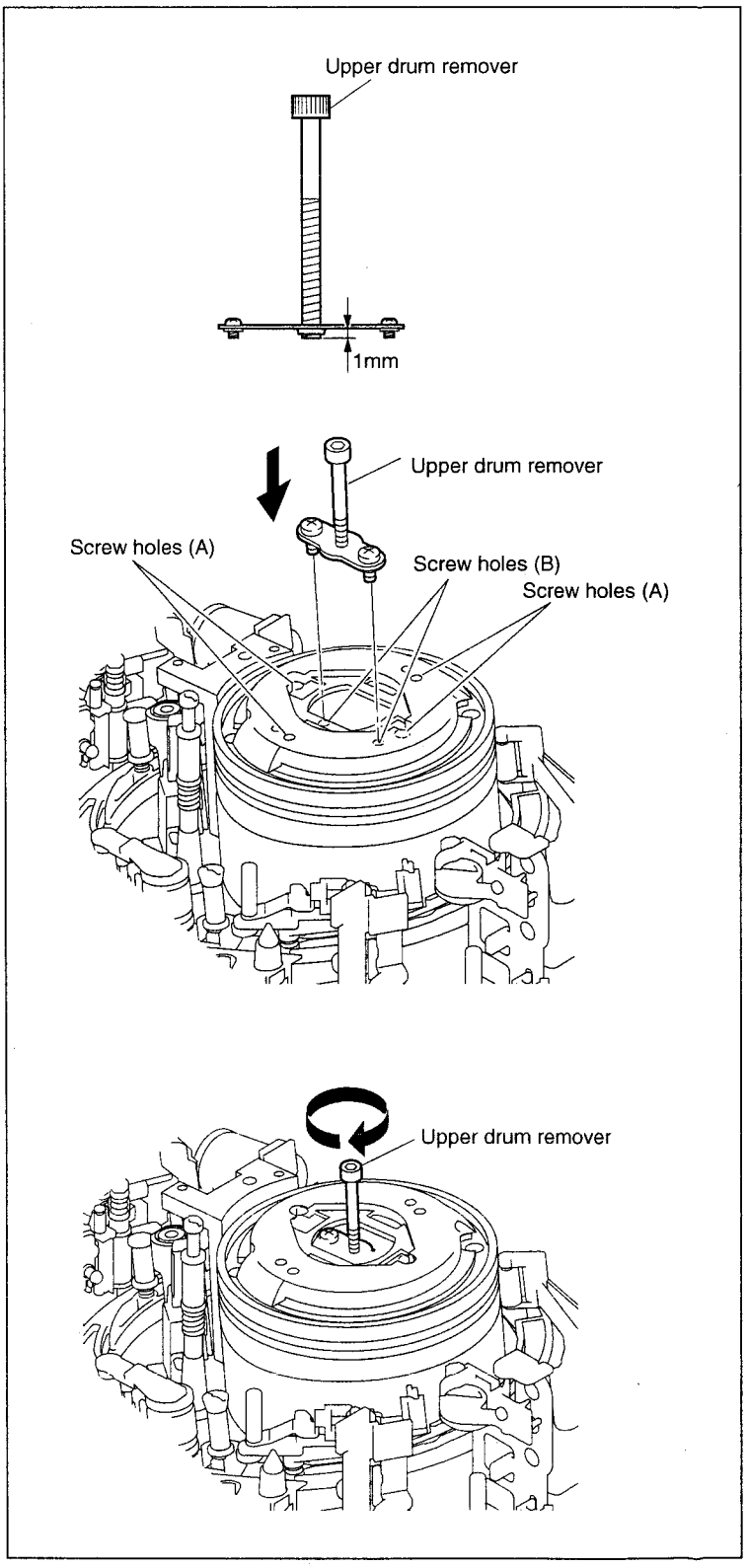
The upper drum remover is spplied with an upper drum for repair.

(3) Attach the upper drum remover to the two screws holes (B) of the brush slip ring assembly with two screws.

(4) Turn the hexagon screw of the upper drum remover clockwise by finger. The upper drum will be detached from the shaft of the lower drum slowly.

Note

If the hexagon screw of the upper drum remover is being rotated with the four upper drum fixing screws loosen insufficiently, the lower drum may get damaged.



Remove the Upper Drum Assembly

Installation

Note

The upper drum cover is attached with the upper drum for repair. The cover is used for positioning when installing the upper drum. Never remove it until removal is instructed.

4. Cleaning

(1) Clean the portions below with a cleaning cloth moistened with cleaning fluid.
- New upper drum assembly mounting surfaces (shaded portions shown in the figure)
- Lower drum flanges (shaded portions shown in the figure) and edge portion
- Lower drum's tape running surface and lead portion (Refer to Section 2-2-3.)

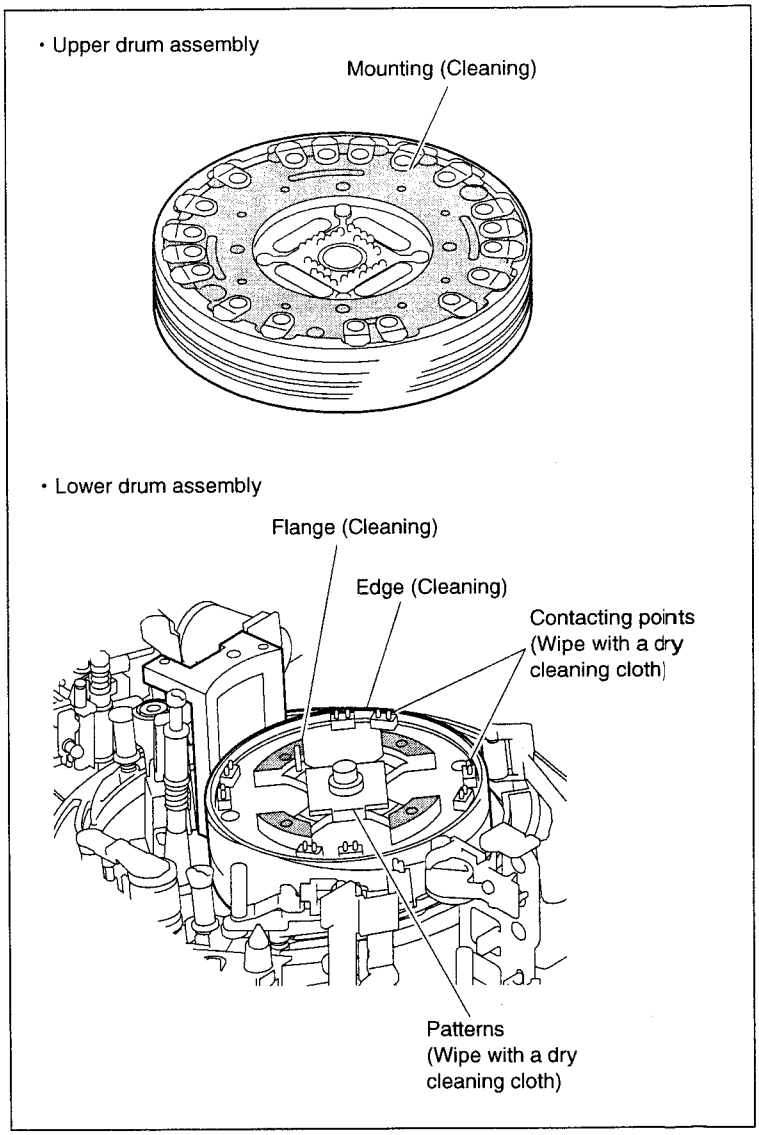
Note

After cleaning, wipe with a dry cleaning cloth.

(2) Wipe the portions shown in the figure with a dry cleaning cloth.

Note

Do avoid applying cleaning fluid to the contacting points and patterns.
- Contacting points of upper drum
- Patterns of upper drum
- Contacting points of lower drum
- Patterns of lower drum



Cleaning

5. Installing the Upper Drum Assembly

Note

When replacing the upper drum of this model, it is not necessary to make an eccentricity adjustment of the upper drum.

(1) Align the hole (A) in DR-340 board with the positioning pin on the upper drum cover. (Fig. 1)

(2) Put the upper drum assembly on the lower drum gently with the central shaft of lower drum and the central hole of upper drum aligned, while keeping the state of (1).

Notes

- Never hold the claws of the upper drum cover when installing the upper drum assembly.
- Be careful not to touch the CTL/TC head, peripheral tape guides and drum support when installing the upper drum assembly.
- Do not turn the upper drum with the upper drum cover is attached to.

(3) Press the claws of the upper drum cover in the direction indicated by the arrows and remove it.

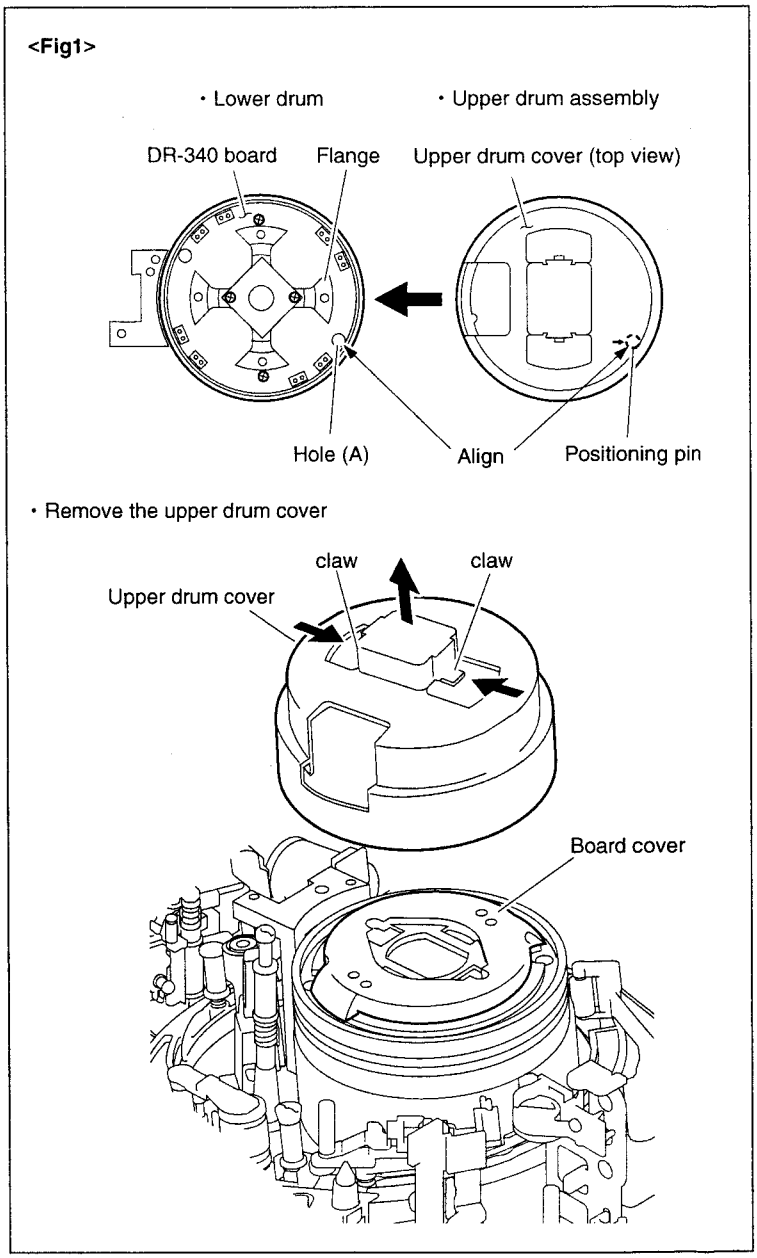
(4) Push the central portion of the upper drum down by finger, and press the upper drum against the flange of the lower drum surely.

(5) Tighten temporarily the four screws in the order shown on the board cover while keeping the state of (4).

Tightening torque : 39.2×10^{-2} N•m
{4.0 kgf•cm}

(6) Tighten securely the four screws in the same order in step (5) using a torque screwdriver.
Tightening torque : 78.5×10^{-2} N•m
{8.0 kgf•cm}

<Fig1>



Install the Upper Drum Assembly

6. Installing the Brush Slip Ring Assembly

Install the brush slip ring assembly.
(Refer to steps 4 and 5 in Section 3-4.)

7. Cleaning

Clean the upper drum tape running surface and the rotary head.
(Refer to Section 2-2-2.)

Note

After cleaning, wipe with a dry cleaning cloth.

8. Installing the W Cleaner Assembly

Install the W cleaner.
(Refer to steps 4 to 6 in Section 3-5.)

Adjustment after Replacement

9. Confirming the Tape Running

Refer to Section 4-3.

10. Performing the Auto PG Adjustment

Refer to Section 5-9-6.
(3E: Auto PG adjust)

11. Confirming the Tracking

Refer to Section 4-4.

12. Confirming the Drum Head Height

Refer to Section 4-10.

13. Confirming the CTL/TC Head Height

Refer to Section 4-5.

14. Adjusting the CTL/TC Head Position

Refer to Section 4-7.

15. Adjusting the CONFI Head Height

Refer to Section 4-9.

16. Performing the Playback System All Automatic Adjustment (DTF-2)

Refer to Section 5-9-7.
(51: RF PB all adjust (DTF-2))

17. Performing the Playback System All Automatic Adjustment (DTF-1)

Refer to Section 5-9-8.
(52: RF PB all adjust (DTF-1)

18. Confirming the Alignment Tape Playback Error Rate (DTF-2)

Refer to Section 5-9-9.
(53: RF error rate (DTF-2 PB Align))

19. Confirming the Record Error Rate (DTF-2)

Refer to Section 5-9-10.
(54: RF error rate (DTF-2 REC Confi))

20. Confirming the Self REC/PB Tape Playback Error Rate (DTF-2)

Refer to Section 5-9-11.
(55: TF error rate (DTF-2 REC/PB))

21. Confirming the Alignment Tape Playback Error Rate (DTF-1)

Refer to Section 5-9-12.
(56: RF error rate (DTF-1 PB Align))

22. Adjusting the Auto Tracking Amp Gain

Refer to Section 5-9-13.
(57: RF ATF amp gain adjust)

23. Adjusting the RF System Data Save

Refer to Section 5-9-14.
(58: RF data save)

24. ATF Circuit Operation Check

Refer to Section 5-4-13.
(SV18: ATF operation check)

25. SAT Circuit Operation Check

Refer to Section 5-4-13.
(SV19: SAT operation check)

3-3. Drum Assembly Replacement

Outline

Replacement

1. Removing the W Cleaner Assembly (Refer to steps 1 and 2 in Section 3-5.)
2. Disconnecting the Flexible Board (CN2/HN-258 Board)
3. Removing the Drum Assembly
4. Cleaning
   (Drum Assembly Mounting Surfaces and Chassis Mounting Surfaces)
5. Installing the Drum Assembly
6. Connecting the Flexible Board (CN2/HN-258 Board)
7. Cleaning
   (Rotary Heads, Upper Drum's Tape Running Surface and Lower Drum's Tape Running Surface)
8. Installing the W Cleaner Assembly (Refer to steps 4 to 6 in Section 3-5.)

Adjustment after Replacement

9. Confirming the Drum Motor Operation
   (CH08 : Drum Motor Check) (Refer to Section 5-4-13.)
10. Confirming the Tape Running (Refer to Section 4-3.)
11. Performing the Auto PG Adjustment
    (3E : Auto PG adjust) (Refer to Section 5-9-6.)
12. Adjusting the Tracking (Refer to Section 4-4.)
13. Confirming the Drum Head Height (Refer to Section 4-10.)
14. Adjusting the CTL/TC Head Height (Refer to Section 4-5.)
15. Adjusting the CTL/TC Head Azimuth (Refer to Section 4-6.)
16. Adjusting the CTL/TC Head Position (Refer to Section 4-7.)
17. Adjusting the CONFI Head Height (Refer to Section 4-9.)
18. Performing the Playback System All Automatic Adjustment (DTF-2)
    (51 : RF PB all adjust (DTF-2)) (Refer to Section 5-9-7.)
19. Performing the Playback System All Automatic Adjustment (DTF-1)
    (52 : RF PB all adjust (DTF-1)) (Refer to Section 5-9-8.)
20. Confirming the Alignment Tape Playback Error Rate (DTF-2)
    (53 : RF error rate (DTF-2 PB Align)) (Refer to Section 5-9-9.)
21. Confirming the Record Error Rate (DTF-2)
    (54 : RF error rate (DTF-2 REC Confi)) (Refer to Section 5-9-10.)
22. Confirming the Self REC/PB Tape Playback Error Rate (DTF-2)
    (55 : RF error rate (DTF-2 REC/PB)) (Refer to Section 5-9-11.)
23. Confirming the Alignment Tape Playback Error Rate (DTF-1)
    (56 : RF error rate (DTF-1 PB Align)) (Refer to Section 5-9-12.)
24. Adjusting the Auto Tracking Amp Gain
    (57 : RF ATF amp gain adjust) (Refer to Section 5-9-13.)
25. Adjusting the RF System Data Save
    (58 : RF data save) (Refer to Section 5-9-14.)
26. ATF Circuit Operation Check
    (SV18 : ATF operation check) (Refer to Section 5-4-13.)
27. SAT Circuit Operation Check
    (SV19 : SAT operation check) (Refer to Section 5-4-13.)

Note

Be careful not to damage the CTL/TC head and peripheral tape guides when removing or installing the drum assembly.

Basic knowledge

Except in the periodic replacement time, replace the drum assembly in the following cases.

- The upper or lower drum's tape running surface is damaged and cannot be repaired.
- A correct RF signal waveform cannot be obtained due to the worn upper or lower drum even if the tracking adjustment is performed.
- The performance of the unit deteriorates because of the noise or jitter caused by the bearing life.

Tools

- Hexagonal wrench driver (2.5 mm): 7-700-766-04
- Torque screwdriver (6 kg•cm) (JB-5251): J-6252-510-A
- Torque screwdriver (12 kg•cm) (JB-5252): J-6252-520-A
- Torque screwdriver's hexagonal bit (d = 2.5 mm, l = 120 mm): J-6251-090-A
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the W Cleaner Assembly

Remove the W cleaner assembly.
(Refer to steps 1 and 2 in Section 3-5.)

2. Disconnecting the Flexible Board

Disconnect the flexible board from the connector CN2 on the HN-258 board.

3. Removing the Drum Assembly

(1) Turn the upper drum assembly with fingers counterclockwise and align the hole of the upper drum assembly with the fixing screw position on the lower drum assmbly.

Note

The drum assembly is fixed to the MD base assembly with the three fixing screws (C3 × 8) in the screw hole.

(2) Loosen the screw fully using a hexagonal wrench driver.

Note

These screws cannot be removed because of stoppers.

(3) Loosen other two screws fully in the same way in steps (1) and (2).
(4) Remove the two screws, then remove the leaf spring (2).
(5) Raise the drum assembly uprightly.

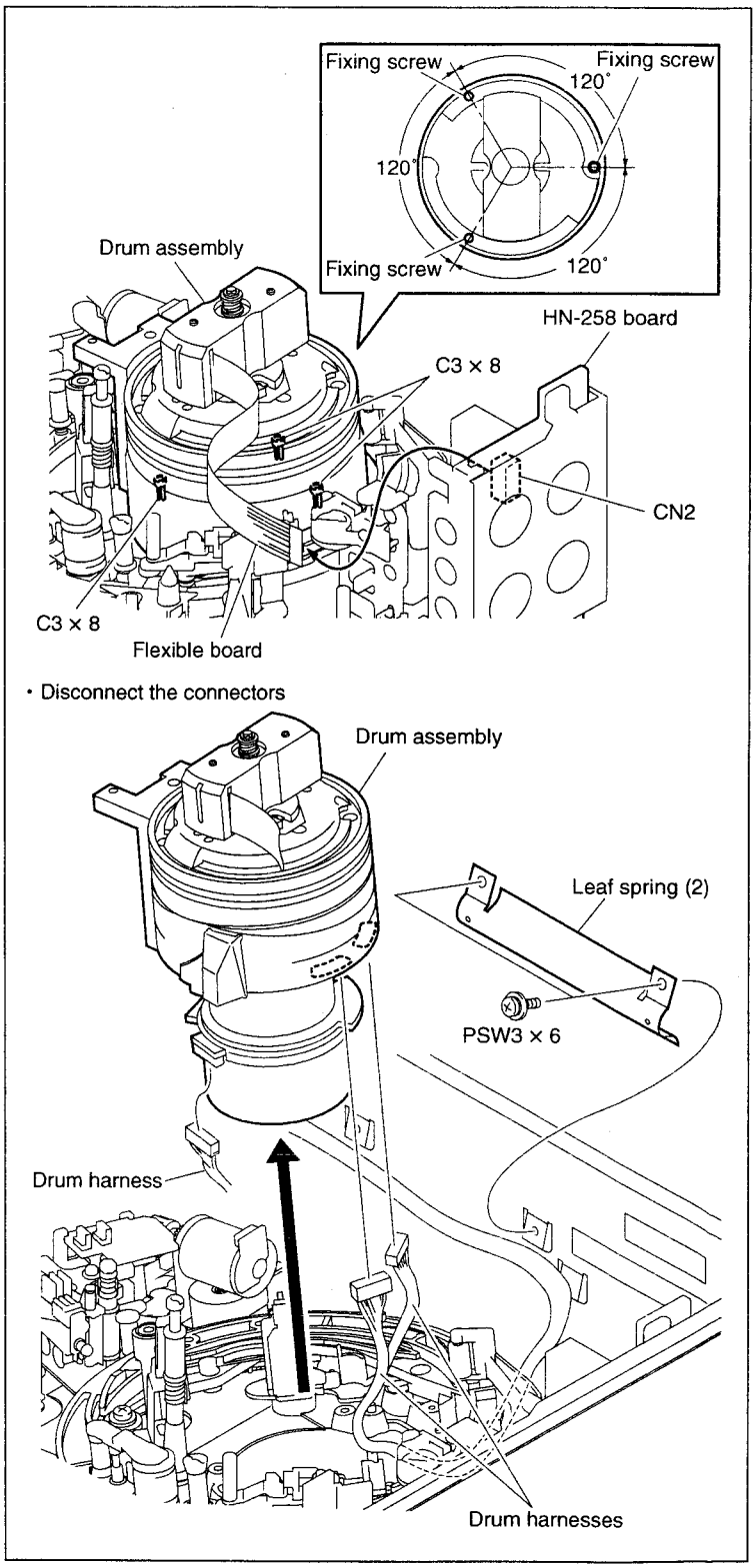
Notes

- Be careful not to raise the drum assembly by holding the brush/slip ring assembly.
- When lifting up the drum assembly, the drum harnesses connected to the drum assembly are retracted in the underside of the MD base assembly, therefore use care to prevent the drum harnesses from contacting to other parts in vicinity.

(6) Disconnect the three drum harness from the three connectors of the drum assembly while keeping state of step (5).
According the drum assembly can be removed.

Note

Be careful not to touch the CTL/TC head and peripheral tape guides when removing the drum assembly.



Remove the Drum Assembly

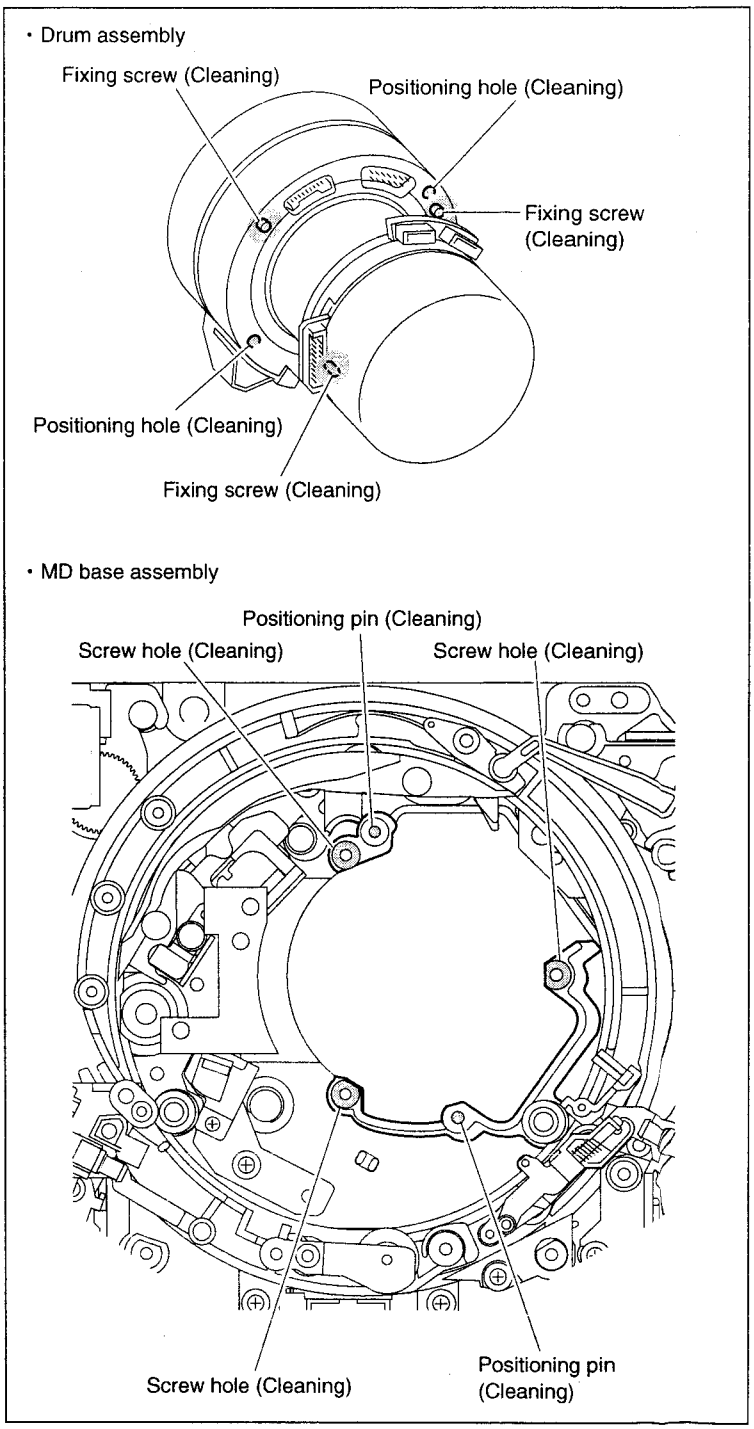
Installation

4. Cleaning

Clean the new drum assembly mounting surfaces and chassis mounting surfaces with a cleaning cloth moistened with cleaning fluid.

CAUTION

After cleaning, wipe with a dry cleaning cloth.



Cleaning

5. Installing the Drum Assembly

(1) Hold the drum assembly as shown in the figure and connect the three harnesses disconnected in (6) of step 3.

Notes

- Hold the drum support, not to hold the upper drum and the brush slip ring assembly.
- Pay attention to the orientation of the connectors.

(2) Align the two positioning holes of the drum assembly with the two positioning pins of the MD base assembly while pulling up the drum harnesses shown in the figure.

Notes

- Avoid pulling the drum harnesses forcibly, or the harnesses may come off the drum assembly.
- Be careful not to touch the CTL/TC head and tape guide at that time.
- Be careful not to put the harnesses between the lower drum and the MD base assembly.

(3) Confirm that the drum assembly is firmly inserted into the positioning pins.

(4) Rotate the upper drum manually counterclockwise and align the upper drum assembly holes with the fixing screw position.

(5) Tighten the screw temporarily.

(6) Tighten other two screws temporarily in the same way in steps (4) and (5).

(7) Tighten the three screws in turns counterclockwise for each by two or three turns.

Tightening torque: 78.4×10^{-2} N•m {8 kgf•cm}

(8) Fix the drum harnesses at the leaf spring (2), then install with the two screws.

6. Connecting the Flexible Board

Connect the flexible board into the connector CN2 on the HN-258 board, then lock.

7. Cleaning

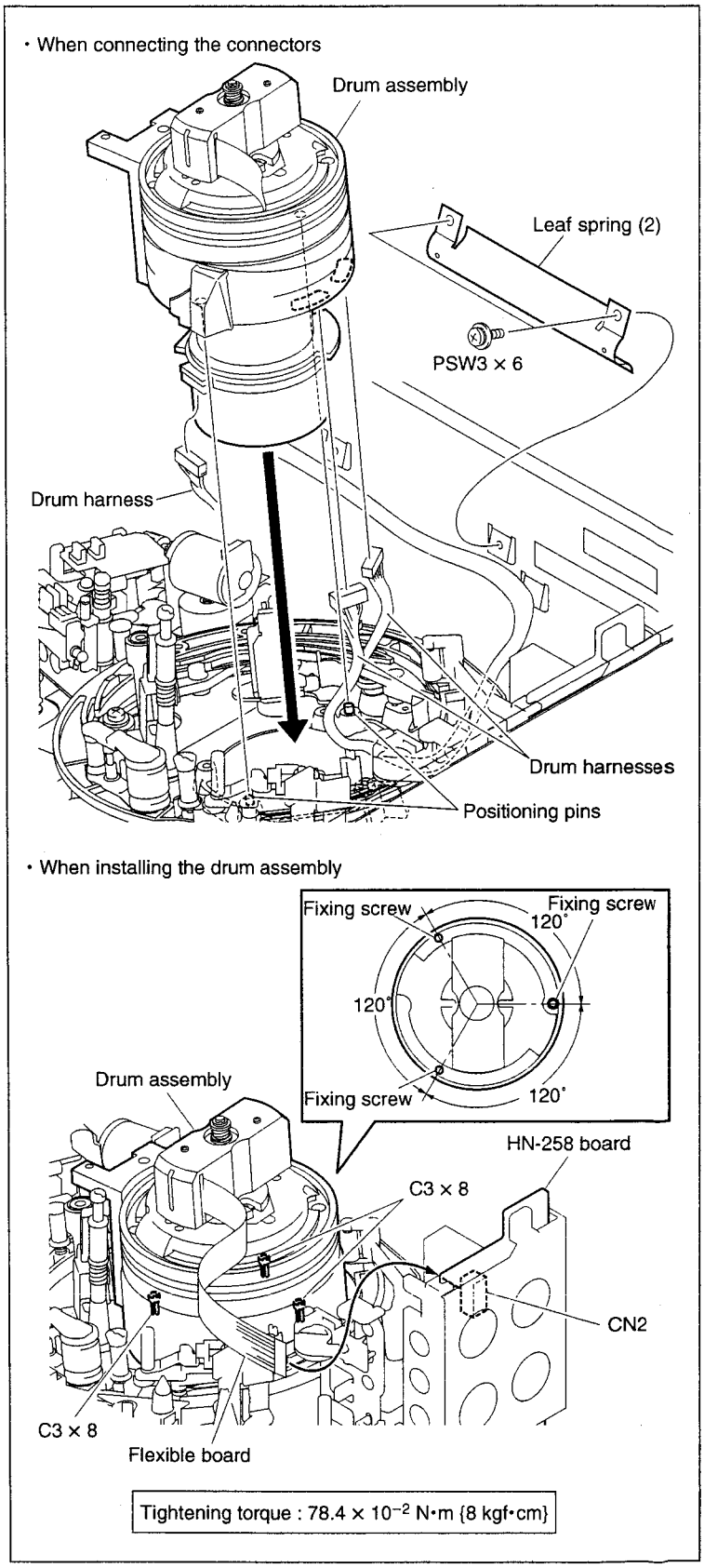
Clean the portions below.

(1) Upper drum's tape running surface and rotary heads. (Refer to Section 2-2.)

(2) Lower drum's tape running surface and lead surface. (Refer to Section 2-2.)

Note

After cleaning, wipe with a dry cleaning cloth.



Install the Drum Assembly

8. Installing the W Cleaner Assembly
Install the W cleaner.
(Refer to steps 4 to 6 in Section 3-5.)

Adjustment after Replacement

9. Confirming the Drum Motor Operation
Refer to Section 5-4-13.
(CH08 : Drum Motor Check)

10. Adjusting the Tape Running
Refer to Section 4-3.

11. Performing the Auto PG Adjustment
Refer to Section 5-9-6.
(3E : Auto PG adjust)

12. Adjusting the Tracking
Refer to Section 4-4.

13. Confirming the Drum Head Height
Refer to Section 4-10.

14. Adjusting the CTL/TC Head Height
Refer to Section 4-5.

15. Adjusting the CTL/TC Head Azimuth
Refer to Section 4-5.

16. Adjusting the CTL/TC Head Position
Refer to Section 4-7.

17. Adjusting the CONFI Head Height
Refer to Section 4-9.

18. Performing the Playback System All Automatic Adjustment (DTF-2)
Refer to Section 5-9-7.
(51 : RF PB all adjust (DTF-2))

19. Performing the Playback System All Automatic Adjustment (DTF-1)
Refer to Section 5-9-8.
(52 : RF PB all adjust (DTF-1))

20. Confirming the Alignment Tape Playback Error Rate (DTF-2)
Refer to Section 5-9-9.
(53 : RF error rate (DTF-2 PB Align))

21. Confirming the Record Error Rate (DTF-2)
Refer to Section 5-9-10.
(54 : RF error rate (DTF-2 REC Confi))

22. Confirming the Self REC/PB Tape Playback Error Rate (DTF-2)
Refer to Section 5-9-11.
(55 : RF error rate (DTF-2 REC/PB))

23. Confirming the Alignment Tape Playback Error Rate (DTF-1)
Refer to Section 5-9-12.
(56 : RF error rate (DTF-1 PB Align))

24. Adjusting the Auto Tracking Amp Gain
Refer to Section 5-9-13.
(57 : RF ATF amp gain adjust)

25. Adjusting the RF System Data Save
Refer to Section 5-9-14.
(58 : RF data save)

26. ATF Circuit Operation Check
Refer to Section 5-4-13.
(SV18 : ATF operation check)

27. SAT Circuit Operation Check
Refer to Section 5-4-13.
(SV19 : SAT operation check)

3-4. Brush Slip Ring Assembly Replacement

Outline

Replacement

1. Disconnecting the Flexible Board (CN2/HN-258 Board)
2. Removing the Brush Slip Ring Assembly
3. Cleaning (DR-341 Board's Contacting Points and Brush Slip Ring Assembly Mounting Surface)
4. Installing the Brush Slip Ring Assembly
5. Connecting the Flexible Board (CN2/HN-258 Board)

Note

When the brush or slip ring was worn or damaged, replace the brush slip ring assembly. A single brush or slip ring cannot be replaced.

Tools

- Torque screwdriver (6 kg•cm) (JB-5251): J-6252-510-A
- Torque screwdriver's bit (+2 mm, l = 75 mm): J-6323-420-A
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Disconnecting the Flexible Board

Disconnect the flexible board from connector CN2 on the HN-258 board.

2. Removing the Brush Slip Ring Assembly

(1) Remove the two screws, then remove the brush slip ring assembly.

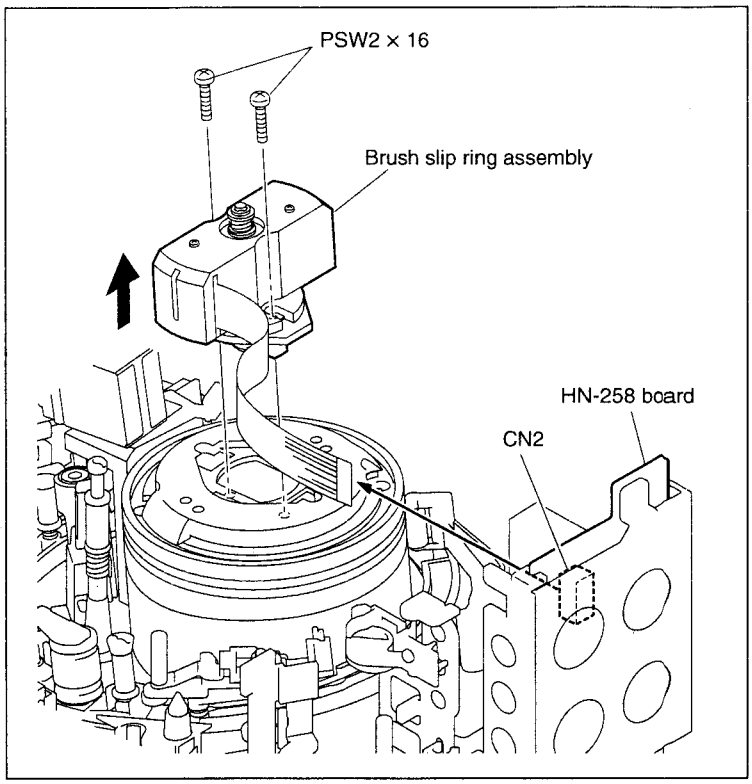
Note

Do not apply excessive force to the brush slip ring assembly at that time.

(2) Turn the brush slip ring assembly upside down, and take out the two screws.

Note

Use care not to fall the screws into the cover.



Remove the Brush/Slip Ring Assembly

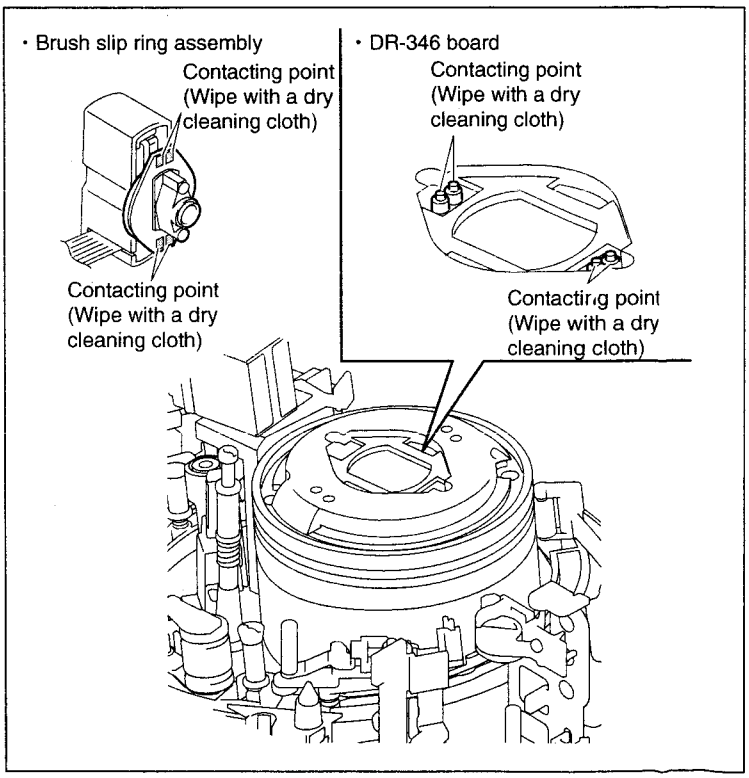
Installation

3. Cleaning

Wipe the brush slip ring assembly mounting surface (shaded portion in the figure) and the DR-341 board contacting points with a dry cleaning cloth.

Note

Do not apply cleaning fluid to the contacting points.


• Brush slip ring assembly
Contacting point (Wipe with a dry cleaning cloth)
Contacting point (Wipe with a dry cleaning cloth)
• DR-346 board
Contacting point (Wipe with a dry cleaning cloth)
Contacting point (Wipe with a dry cleaning cloth)

Cleaning

4. Installing the Brush Slip Ring Assembly

(1) Insert the two screws taken out in (2) of step 2 into the screw holes of the brush slip ring assembly.
(2) Install the brush slip ring assembly positioning as shown in the figure.
(3) Tighten the two screws alternately while pushing both sides of the flange equally from above.

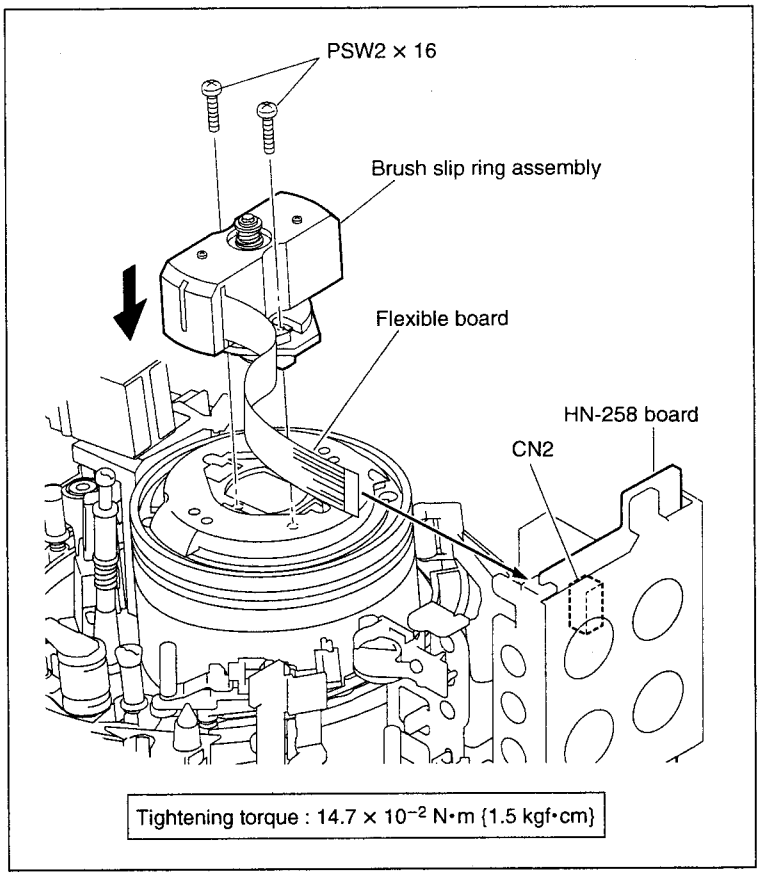
Tightening torque: 14.7×10^{-2} N•m {1.5 kgf•cm}

Note

Never apply excessive force to the cover.

5. Connecting the Flexible Board

Connect the flexible board into connector CN2 on the HN-258 board.



Install the Brush/Slip Ring Assembly

3-5. W Cleaner Assembly Cleaning Roller Replacement

Outline

Replacement

1. Removing the Harnesses (CN231, CN232/HN-268 Board)
2. Removing the W Cleaner Assembly
3. Replacing the Cleaning Roller
4. Installing the W Cleaner Assembly
5. Adjusting the Cleaning Roller Position
6. Installing the Harnesses (CN231, CN232/HN-268 Board)

Adjustment after Replacement

7. Confirming the Cleaning Solenoid Operation
   (CH05: Pinch Roller and Cleaning Roller Solenoid Check)
   (Refer to Section 5-4-13.)

Note

When the cleaning roller is replaced, it is recommended to replace the cap at the same time.

- Cap: 3-625-203-02

Preparation

1. Turn the power off and remove the power code.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

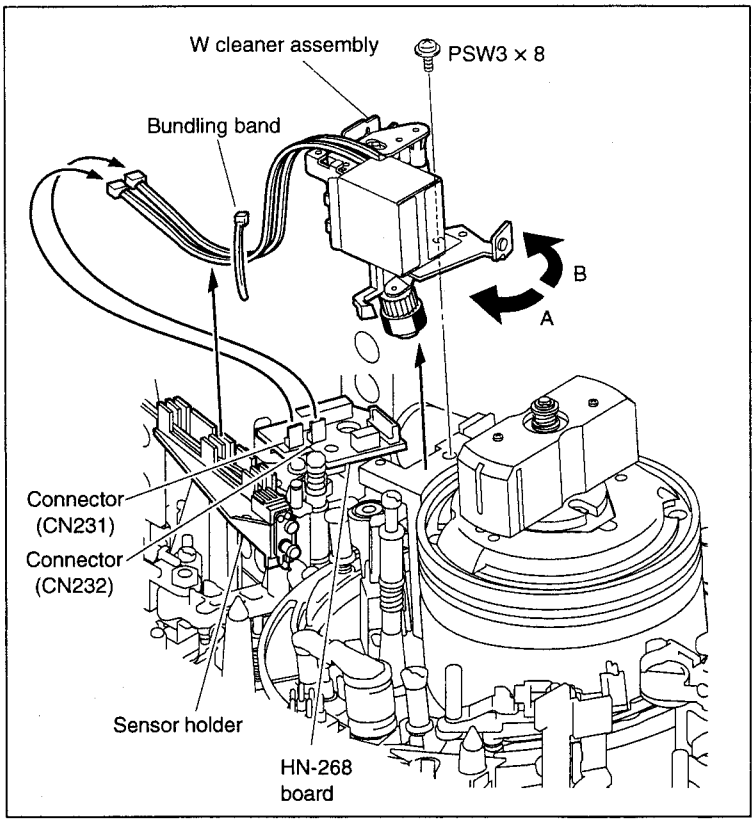
Removal

1. Removing the Harness

(1) Disconnect the harnesses from the connectors CN231 and CN232 on the HN-268 board.
(2) Release the bundling band.
(3) Remove the harnesses from the sensor holder.

2. Removing the W Cleaner Assembly

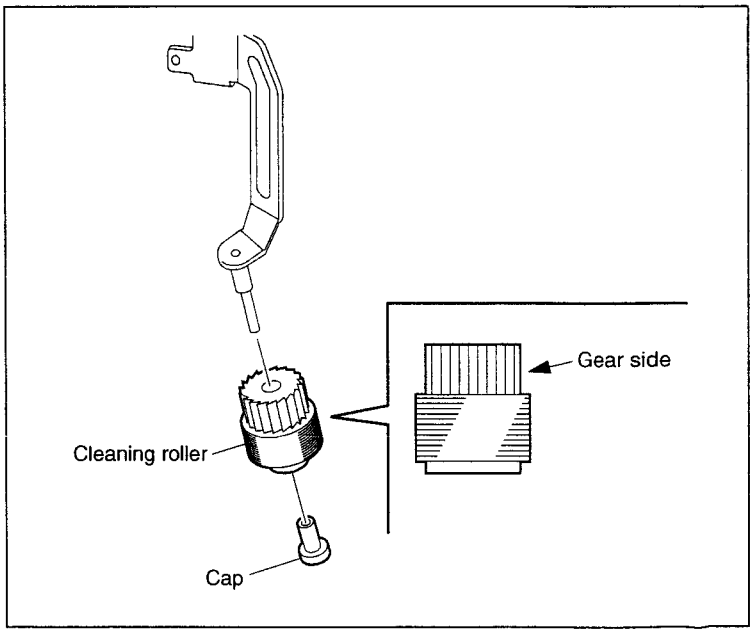
Remove the screw, shift the W cleaner assembly in the direction of arrow A, and remove it from the drum support.



Remove/Install the Rotary Head Cleaner Assembly

3. Replacing the Cleaning Roller

(1) Remove the cap, and remove the cleaning roller.
(2) Pass a new cleaning roller through the shaft positioning as shown in the figure. Then fix the cleaning roller by the cap.
(3) Move the cleaning roller in the vertical direction by manual.
At this time, confirm that there is no vertical play.



Replace the Cleaning Roller

Installation

4. Installing the Rotary Head Cleaner Assembly

(1) Insert the cleaning roller from the clearance between the drum support and full erase head.
(2) Align the two pins of the W cleaner assembly with the two holes of the drum support.
(3) Tighten the screw while moving the W cleaner assembly in the direction of arrow B.

5. Adjusting the Cleaning Roller Position

(1) Visually check that the cleaning roller does not come in contact with the upper drum. (Spec.1)

If the cleaning roller comes in contact with the upper drum, bend the portion B of the roller arm assembly supporting on the portion A in the direction of arrow C.

(2) Press the iron core of the slenoid A in the arrow direction. At that time, check that clearance exists between the roller lever assembly and the roller arm assembly. (Spec.2)

If clearance does not exist, bend the portion B of the roller arm assembly supporting on the portion A in the direction of arrow D.

(3) Repeat steps (1) and (2) above until the specifications 1 and 2 are satisfied.

(4) Press the iron core of solenoid B in the arrow direction, and then check that the clearance exists between the brake lever and the brake arm. (Specification 3)
Failing the clearance, perform the procedures below.

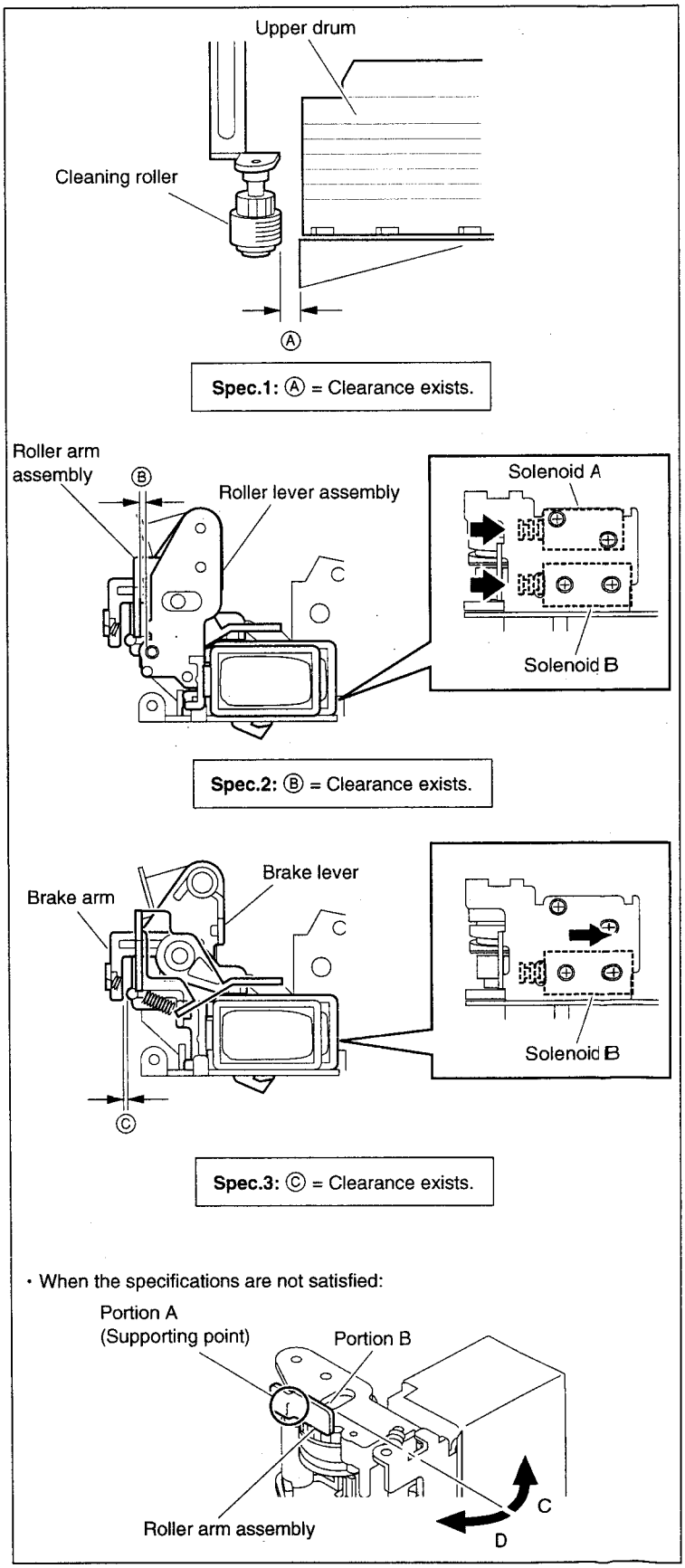
(5) Remove the screw to remove the W cleaner assembly.

(6) Reinstall the W cleaner assembly in the drum support with the shield case left out.

(7) Slacken the fixing screw of the solenoid B and shift the solenoid B in the arrow direction.

(8) Stop shifting at the point that the Specification 3 is satisfied and tighten the fixing screw of the solenoid B.

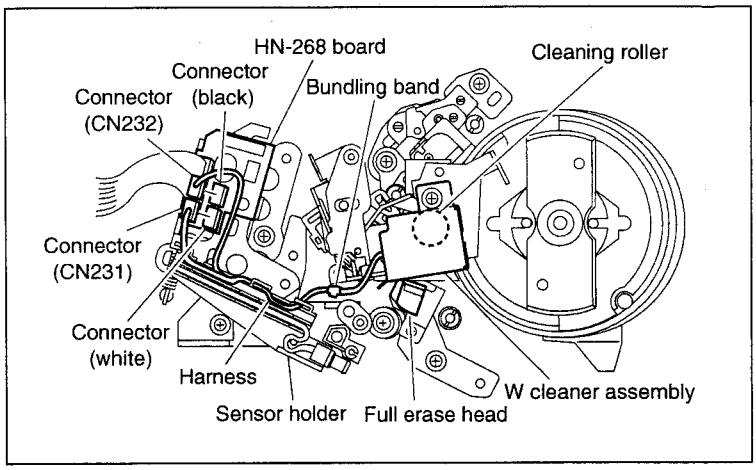
(9) Remove again the W cleaner assembly and reinstall it together with the shield case in the drum support.



Cleaning Roller Position Adjustment

6. Installing the harnesses

(1) Fix the harnesses to the sensor holder positioning as shown in the figure.
(2) Connect the harnesses to the connectors CN231 and CN232 on the HN-268 board.
(3) Fix the harnesses using a bundling band (or on equivalent).



Install the Harness

Adjustment after Replacement

7. Confirming the Cleaning Solenoid Operation

Refer to Section 5-4-13.
(CH05: Pinch Roller and Cleaning Roller Solenoid Check)

3-6. CTL/TC Head Cleaner Replacement

Outline

Replacement

1. Removing the CL Arm Assembly
2. Installing the CL Arm Assembly
3. Confirming the CL Arm Assembly Operation

Note

- When the CTL/TC head cleaner becomes dirty or is damaged, replace the CL arm assembly.
- Adjustment after the CL arm assembly replacement is not required. However, confirm the CL arm assembly operation.
- Prepare a new stop washer when replacing the CL arm assembly.
  Stop washer (2.3): 3-669-596-00

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the CL Arm Assembly

(1) Turn the M gear of the gear box assembly manually in the direction of the arrow and move the CL arm assembly to the position shown in the figure.

Note

Move the CL arm assembly to the front of the HN-258 board. Otherwise, the CL arm assembly cannot be removed because the stop washer is hidden by other parts.

(2) Remove the stop washer at the top of the CL arm assembly.

(3) Remove the CL arm assembly from the threading ring.

Note

Do not remove the spring at the bottom of the CL arm assembly from the shaft.

Installation

2. Installing the CL Arm Assembly

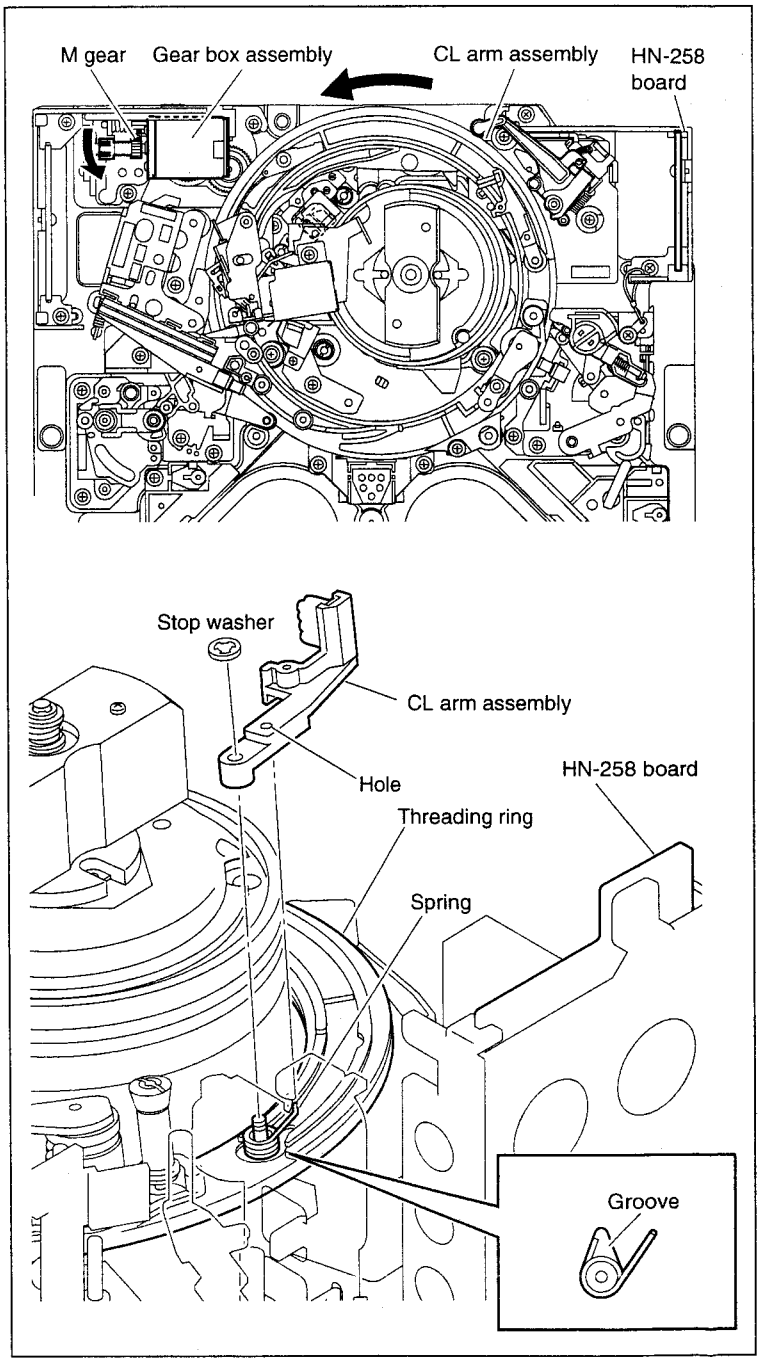
(1) Pass a new CL arm assembly through the shaft while hooking the spring as shown in the figure.

Note

Insert the short-end of spring into the groove of the threading ring and the long-end of spring into the hole of the CL arm assembly.

(2) Fix the CL arm assembly by a new stop washer.

Stop washer (2.3): 3-669-596-00

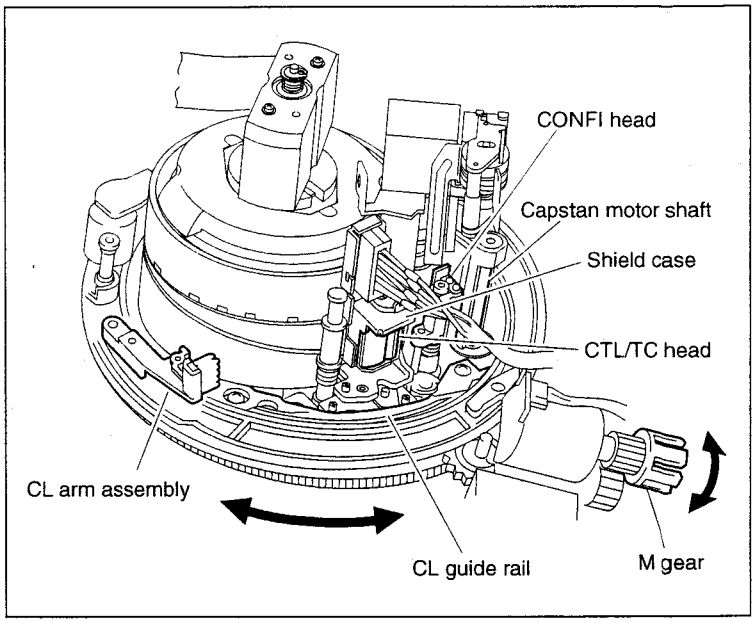


Remove/Install the CL Arm Assembly

3. Confirming the CL Arm Assembly Operation

(1) Turn the M gear of the gear box assembly manually and confirm the items below while repeating the threading and unthreading.
- The CL arm assembly moves along the CL guide rail.
- The cleaning roller cleans the CTL/TC head, CONFI head and capstan motor shaft.

(2) Turn the power on and activate the DIAG mode, then execute CH01: Threading Motor Check, and confirm that the CL arm assembly smoothly operates while repeating the threading and unthreading.



Confirm the CL Arm Assembly Operation

3-7. CONFI Head Assembly Replacement

Outline

Replacement

1. Removing the CL Guide Rail (Refer to step 5 in Section 3-20.)
2. Disconnecting the Flexible Board. (CN2/CT-205 Board)
3. Removing the CONFI Head Assembly.
4. Installing the CONFI Head Assembly.
5. Connecting the Flexible Board. (CN2/CT-205 Board)
6. Installing the CL Guide Rail. (Refer to step 24 in Section 3-20.)
7. Cleaning (CONFI Head Surface)

Adjustment after Replacement

8. Adjusting the CONFI Head Height. (Refer to Section 4-9.)
9. Confirming the Tape Running. (Refer to Section 4-3.)
10. Confirming the Time Code Level in REV Mode. (Refer to Section 4-8.)

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Torque screwdriver (6 kg•cm) (JB-5251): J-6252-510-A
- Torque screwdriver's bit (+2 mm, l = 75 mm): J-6323-420-A
- Tape guide adjusting screwdriver (MW-261): J-6322-610-A

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

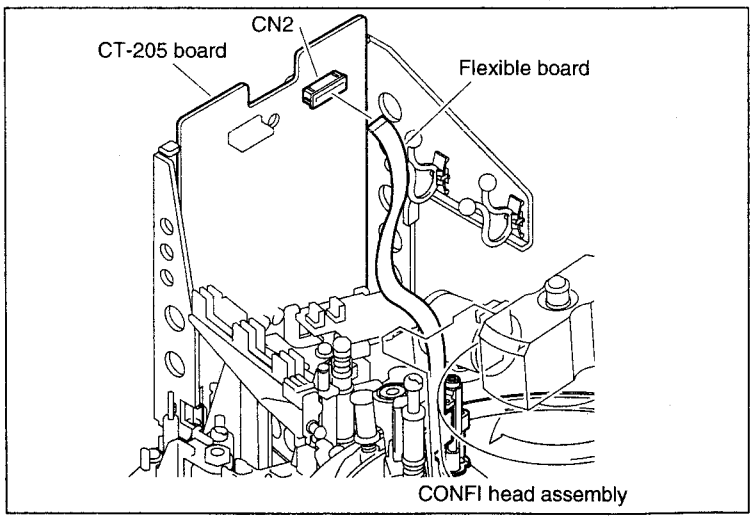
Removal

1. Removing the CL Guide Rail

Remove the CL guide rail.
Refer to step 5 in Section 3-20.

2. Disconnecting the Flexible Board

Disconnect the flexible board from the connector CN2 on the CT-205 board.



Disconnect the Flexible Board

3. Removing the CONFI Head Assembly

Remove the nut for height adjustment to remove the CONFI head assembly.

Note

Use care not to lose the poly-slider washer disposed between the nut for height adjustment and the CONFI head assembly.

Installation

4. Installing the CONFI Head Assembly

(1) Pass a new CONFI head assembly and the poly-slider washer through the shaft.

Note

Be sure to install the CONFI head assembly so that the positioning pin of the head assembly is positioned to the arm A side of the CONFI head bracket.

(2) Turn the CONFI head assembly to counter-clockwise derection, then align the positioning pin with the longitudinal hole of the positioning plate and tighten the nut for height adjustment.

Note

When turning the CONFI head assembly, turn it within the range of the sloted hole of the CONFI head bracket (2).
If not, the arm of the CONFI head bracket will be deformed, and it does not functioned correctly.

5. Connecting the Flexible Board

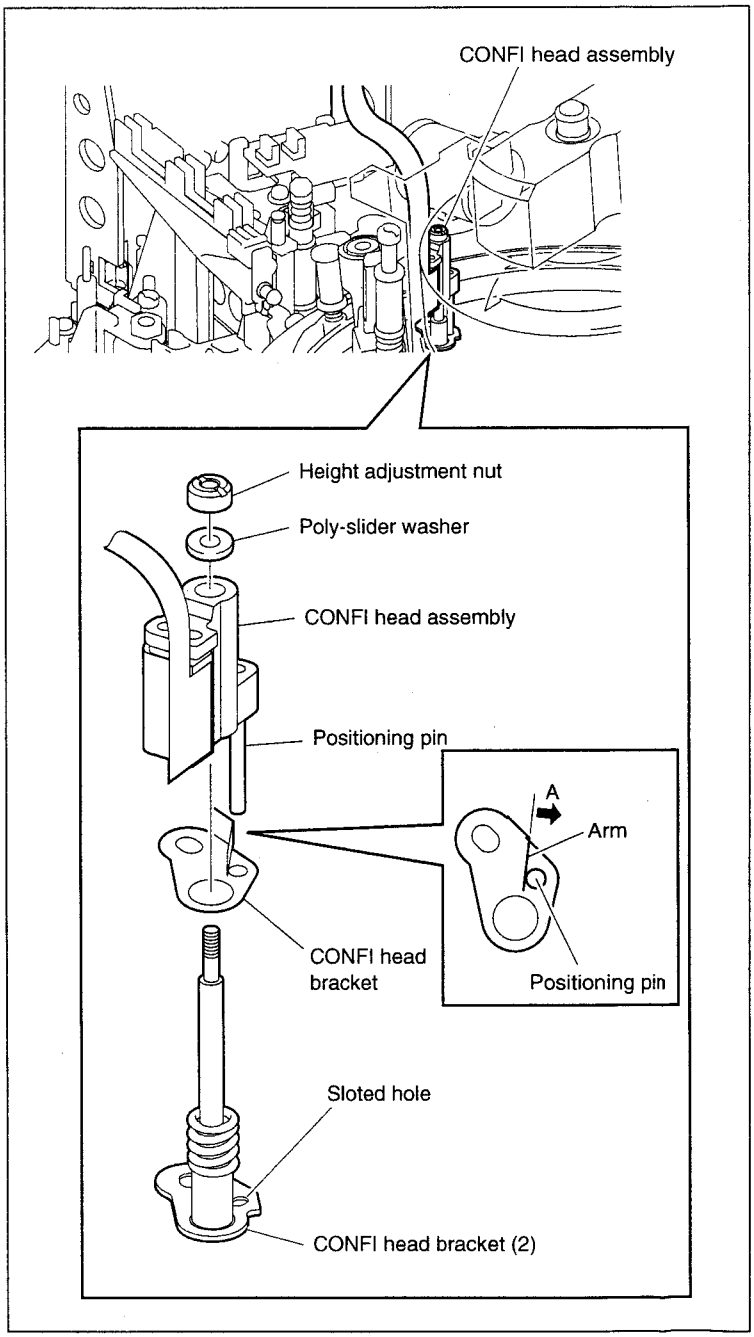
Connect the flexible board to the connector CN2 on the CT-205 board and lock it.

6. Installing the CL Guide Rail

Install the CL guide rail.
(Refer to step 24 in Section 3-20.)

7. Cleaning

Clean the surface of the CONFI head with a cleaning cloth moistened with cleaning fluid.
(Refer to Section 2-2-4.)



Remove/Install the CONFI Head Assembly

Adjustment after replacement

8. Adjusting the CONFI Head Height

Refer to Section 4-9.

9. Confirming the Tape Running

Refer to Section 4-3.

10. Confirming the Time Code Level in REV Mode

Refer to Section 4-8.

3-8. CTL/TC Head Replacement

Outline

Replacement

1. Removing the CL Guide Rail (Refer to step 5 in Section 3-20.)
2. Disconnect the Harness
3. Removing the CONFI Head Assembly (Refer to step 3 in Section 3-7.)
4. Removing the CONFI Head Positioning Plate
5. Removing the CTL/TC Head Assembly
6. Installing the CTL/TC Head Assembly
7. Installing the CONFI Head Positioning Plate
8. Installing the CONFI Head Assembly (Refer to step 4 in Section 3-7.)
9. Connecting the Harness
10. Installing the CL Guide Rail (Refer to step 24 in Section 3-20.)
11. Cleaning (CTL/TC Head and CONFI Head Surfaces)

Adjustment after Replacement

12. Adjusting the CTL/TC Head Zenith (Refer to Section 4-2.)
13. Adjusting the Tape Running (Refer to Section 4-3.)
14. Adjusting the CTL/TC Head Height (Refer to Section 4-5.)
15. Adjusting the CTL/TC Head Azimuth (Refer to Section 4-6.)
16. Adjusting the CTL/TC Head Position (Refer to Section 4-7.)
17. Adjusting the CONFI Head Height (Refer to Section 4-9.)
18. Performing the Auto PG Adjustment (3E: Auto PG Adjust) (Refer to Section 5-9-6.)
19. Confirming the Tracking (Refer to Section 4-4.)
20. Confirming the Tape Running (Refer to Section 4-3.)
21. Confirming the Time Code Level in REV Mode (Refer to Section 4-8.)

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Torque screwdriver (6 kg•cm) (JB-5251): J-6252-510-A
- Torque screwdriver's bit (+2 mm, l = 75 mm): J-6323-420-A
- Tape guide adjusting screwdriver (MW-261): J-6322-610-A

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the CL Guide Rail

Remove the CL guide rail.
(Refer to step 5 in Section 3-20.)

2. Disconnecting the Harness

Disconnect a the Harness on the CTL/TC head assembly.

3. Removing the CONFI Head Assembly

Remove the CONFI head assembly.
Refer to step 3 in Section 3-7.

4. Removing the CONFI Head Positioning Plate

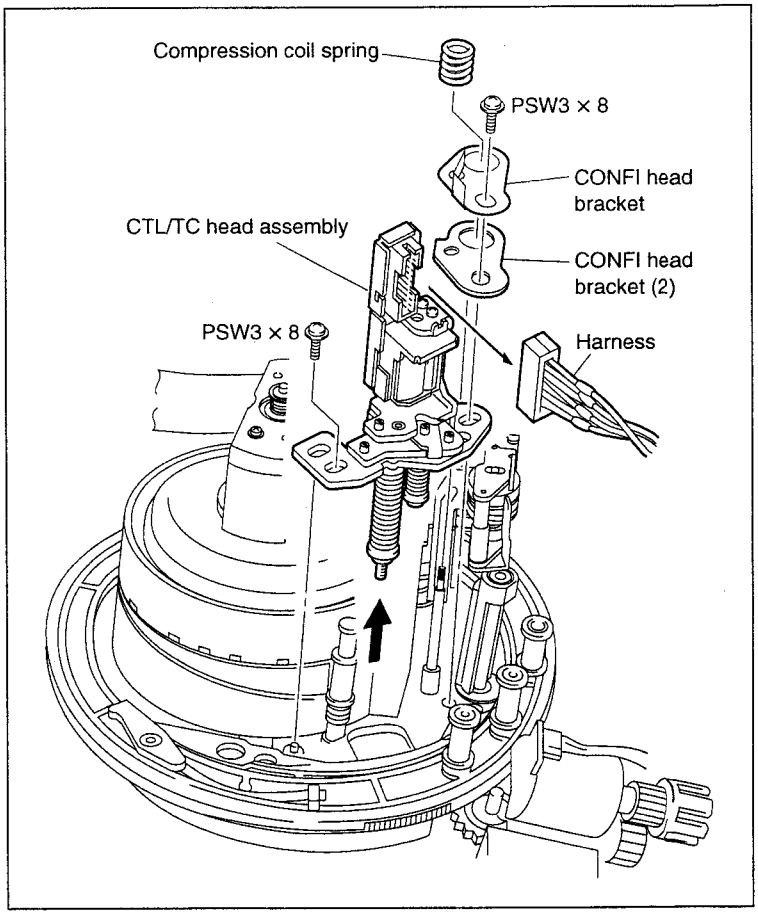
(1) Remove the compression coil spring.
(2) Remove the screw to remove the CONFI head positioning plate and CONFI head bracket.

5. Removing the CTL/TC Head Assembly

Remove the screw, then remove the CTL/TC head assembly from the MD base assembly.

Note

Be careful not to touch the drum (especially rotary heads). Also, take care not to damage the peripheral tape guides.



Remove the CTL/TC Head Assembly

Installation

6. Installing the CTL/TC Head Assembly

(1) Align the two sloted holes of the CTL/TC head assembly with the two bosses of the chassis.

Notes

- Be careful not to touch the drum (especially rotary heads). Also, take care not to damage the peripheral tape guides.
- Be careful not to damage the CTL/TC head surface.

(2) Adjust to position the bosses of the chassis in the center of sloted holes and tighten with the screw Ⓐ.

7. Installing the CONFI Head Positioning Plate

(1) Pass the CONFI head positioning plate and CONFI head bracket through the shaft and fix it with the screw Ⓑ.

(2) Pass the compression coil spring removed in step 4 through the shaft.

8. Installing the CONFI Head Assembly

Install the CONFI head assembly.
(Refer to step 4 in Section 3-7.)

9. Connecting the Harness

Connect the harness to the connector of the CTL/TC head board.

10. Installing the CL Guide Rail

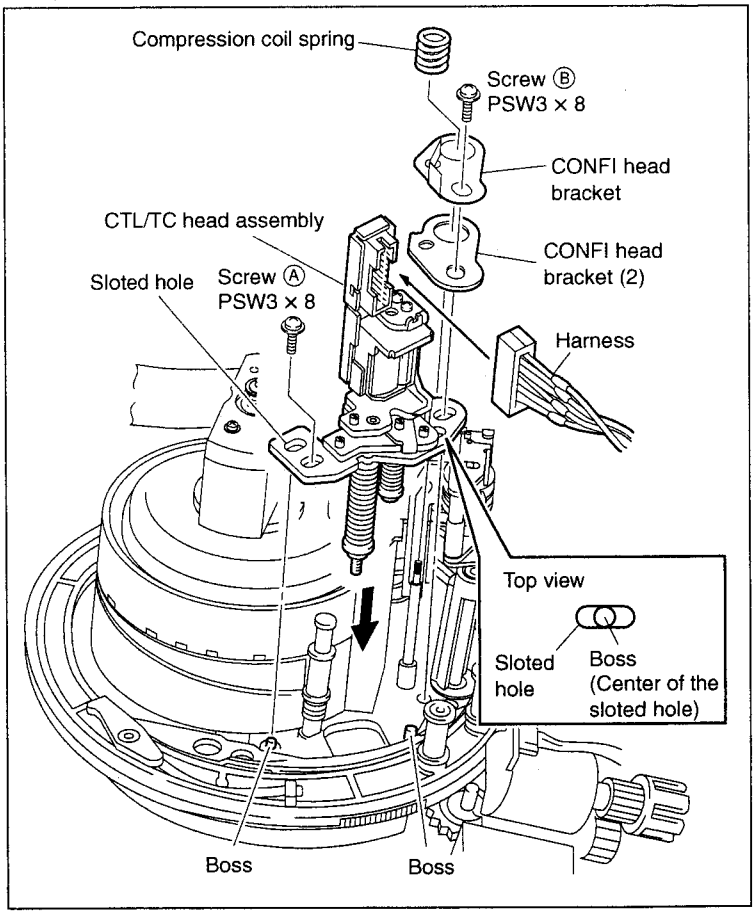
Install the CL guide rail.
(Refer to step 24 in Section 3-20.)

11. Cleaning

Clean the CTL/TC head and CONFI head surfaces with a cleaning cloth moistened with cleaning fluid.

Note

After cleaning, wipe with a dry cleaning cloth.



Install the CTL/TC Head Assembly

Adjustment after Replacement

12. Adjusting the CTL/TC Head Zenith
Refer to Section 4-2.

13. Adjusting the Tape Running
Refer to Section 4-3.

14. Adjusting the CTL/TC Head Height
Refer to Section 4-5.

15. Adjusting the CTL/TC Head Azimuth
Refer to Section 4-6.

16. Adjusting the CTL/TC Head Position
Refer to Section 4-7.

17. Adjusting the CONFI Head Height
Refer to Section 4-9.

18. Performing the Auto PG Adjustment
Refer to Section 5-9-6.
(3E: Auto PG Adjust)

19. Confirming the Tracking
Refer to Section 4-4.

20. Confirming the Tape Running
Refer to Section 4-3.

21. Confirming the Time Code Level in REV Mode
Refer to Section 4-8.

3-9. Pinch Roller Replacement

Outline

Replacement

1. Removing the Pinch Arm Assembly
2. Installing the Pinch Arm Assembly
3. Adjusting the Pinch Arm Assembly Vertical Play
4. Cleaning (Pinch Roller and TG-5 Surfaces)

Notes

- When the pinch roller is damaged or worn, replace the pinch roller assembly.
- Prepare a new stop washer when replacing the pinch roller assembly.
  Stop washer (2.3): 3-669-596-00

Tools

- Thickness gauge: 9-911-053-00
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the Pinch Arm Assembly

(1) Remove the stop washer at the top of the pinch arm assembly.

Note

If a poly-slider washer ① (for vertical play adjustment) is inserted between the pinch arm assembly and the stop washer, use care not to lose it.

(2) Remove the pinch arm assembly from the threading ring.

Note

Do not remove the poly-slider washer ② and spring at the bottom of the pinch arm assembly from the shaft.

Installation

2. Installing the Pinch Arm Assembly

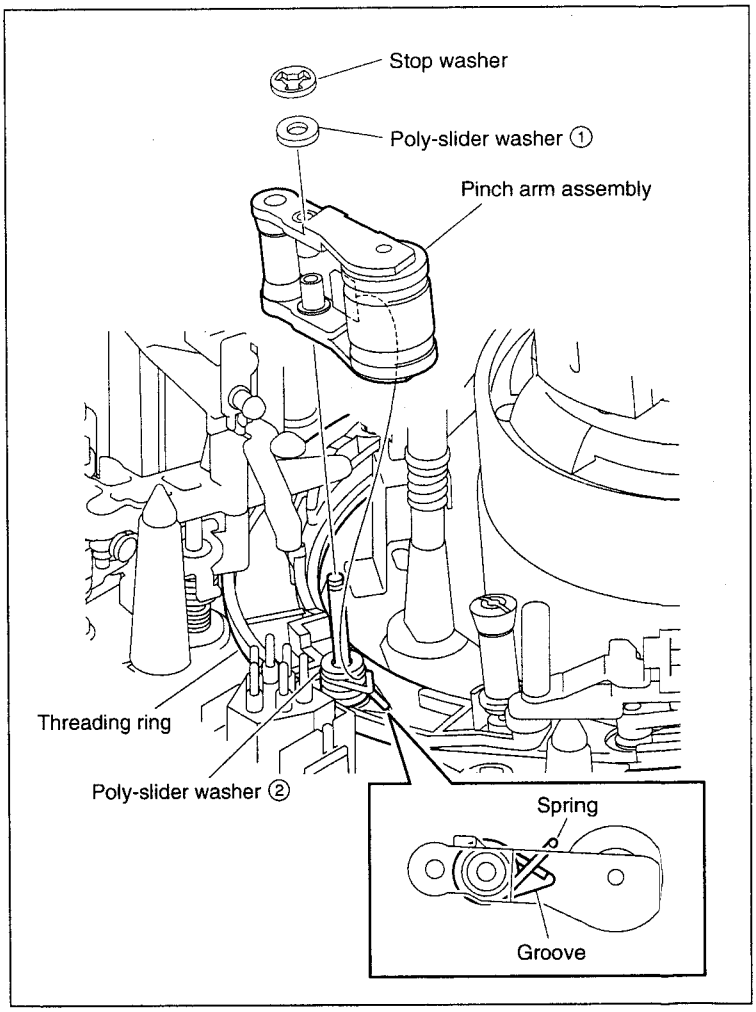
(1) Pass a new pinch arm assembly through the shaft while hooking the spring as shown in the figure.

Notes

- Insert the short-end of the spring into the groove of the threading ring and hook the long-end of the spring to the pinch arm assembly.
- If the poly-slider washer ① (for vertical play adjustment) was removed in step (1), pass it again through the shaft.

(2) Fix the pinch arm assembly by a new stop washer.
Stop washer (2.3): 3-660-596-00

(3) Push the pinch arm assembly manually in the direction of the drum, then release. At that time, confirm that the pinch arm assembly smoothly returns to the former position.



Remove/Install the Pinch Arm Assembly

3. Adjusting the Pinch Arm Assembly Vertical Play

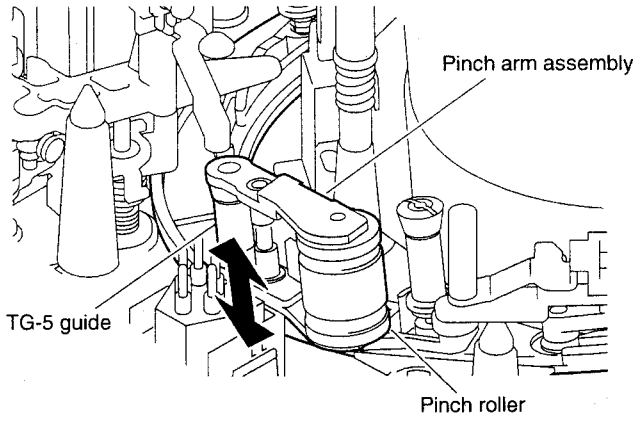
Move the pinch arm assembly in the vertical direction.
At this time, confirm that the vertical play satisfies the specification.

If the specification is not satisfied, perform the adjustment below.

① Remove the stop washer.
② Adjust the thickness of the poly-slider washer at the upper of the pinch arm.
③ Fix the pinch arm assembly by the stop washer, confirm again that the specification is met.

4. Cleaning

Clean the pinch roller and TG-5 guide surfaces with a cleaning cloth moistened with cleaning fluid.
(Refer to Section 2-2-5.)



Spec.: Vertical play
0.05 mm to 0.2 mm

• Poly-slider washer for adjustment

Diameter	Thickness	Part No.
3.0 mm	0.13 mm	3-701-439-01
	0.25 mm	3-701-439-11

Adjust the Pinch Arm Assembly Vertical Play

3-10. Pinch Press Assembly Replacement

Outline

Replacement

1. Disconnecting the Harnesses (CN216, CN231, CN232, CN233/HN-268 Board)
2. Removeing the Pinch Press Assembly
3. Installing the Pinch Press Assembly
4. Connecting the Harnesses (CN216, CN231, CN232, CN233/HN268 Board)
5. Confirming the Pinch Press Clearance

Adjustment after Replacement

6. Confirming the Pinch Solenoid Operation
   (CH05: Pinch Roller and Cleaning Roller Solenoid Check)
   (Refer to Section 5-4-13.)

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

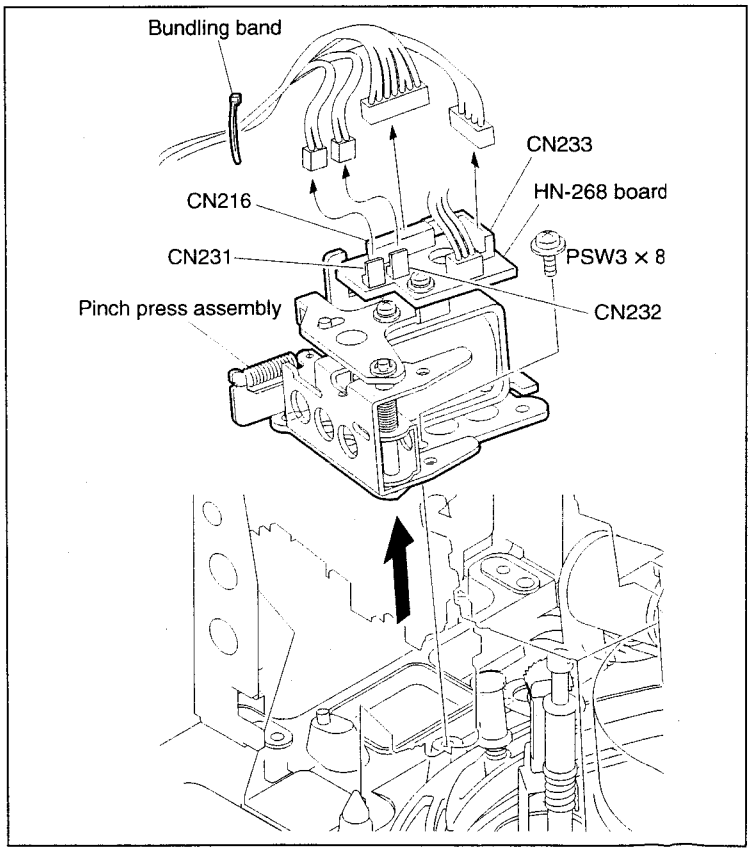
Removal

1. Disconnecting the Harnesses

(1) Release the harnesses from the bundling band.
(2) Disconnect the harnesses from the four connectors CN216, CN231, CN232 and CN233 on the HN-268 board.

2. Removing the Pinch Press Assembly

Remove the screw, then remove the pinch press assembly from the unit.



Remove the Pinch Press Assembly

Installation

3. Install the Pinch Press Assembly

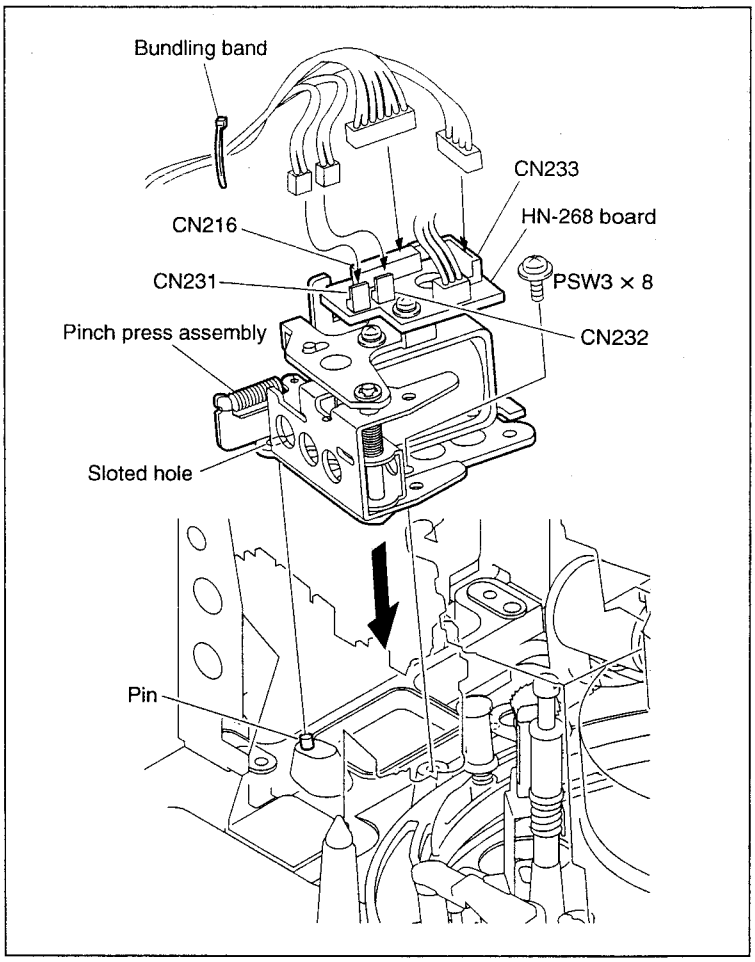
Align the sloted hole of the pinch press assembly with the pin of the MD base assembly with the screw.

4. Connecting the Harnesses

(1) Reconnect the harnesses disconnected in step 1 to the four connectors CN216, CN231, CN232 and CN233 on the HN-268 board.
(2) Fix the harnesses in the bundling band (or an equivalent) avoiding contact to the drive portion of the gearbox assembly.

5. Confirming the Pinch Press Clearance

(1) Turn the M gear of the gearbox assembly by manual to set to the threading end state.
(2) Press the iron core of the pinch solenoid in the pull-in direction and confirm that the clearance between the press arm (A) and (B) is met the specification.

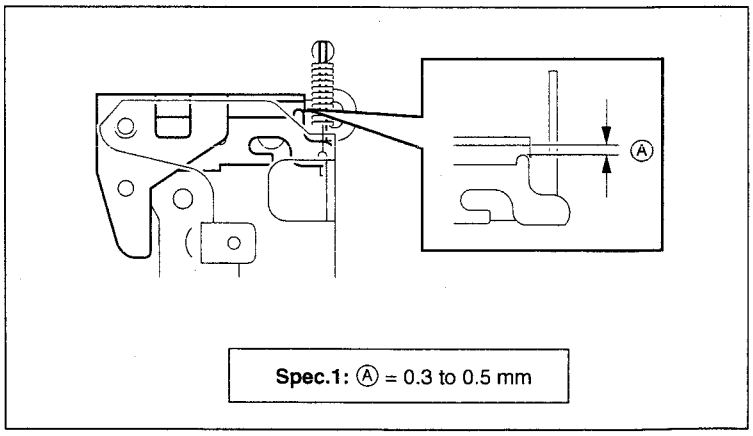


Install the Pinch Press Assembly

Adjustment after Replacement

5. Confirming the Pinch Solenoid Operation

Refer to Section 5-4-13.
(CH05: Pinch Roller and Cleaning Roller Solenoid Check)



Confirming the Pinch Press Clearance

3-11. Capstan Motor Replacement

Outline

Replacement

1. Removing the W Cleaner Assembly (Refer to steps 1 and 2 in Section 3-5.)
2. Removing the CONFI Head Assembly (Refer to step 3 in Section 3-7.)
3. Opening the SV-205 Board (Refer to Section 1-9-8.)
4. Removing the Capstan Motor
5. Installing the Capstan Motor
6. Closing the SV-205 Board (Refer to Section 1-9-8.)
7. Installing the CONFI Head Assembly (Refer to step 4 in Section 3-7.)
8. Cleaning (Capstan Motor Shaft and CONFI Head Surface)
9. Installing the W Cleaner Assembly (Refer to steps 4 through 6 in Section 3-3-4.)

Adjustment after Replacement

10. Confirming the Pinch Press Clearance (Refer to Section 3-10.)
11. Confirming the Tape Running (Refer to Section 4-3.)
12. Performing the CONFI Head Height (Refer to Section 4-9.)
13. Confirming the Capstan Motor Operation
    (CH06: Capstan Motor Check) (Refer to Section 5-4-13.)
14. Performing the Servo Adjustment
    (All Motors, Tension Sensor Adj) (Refer to Section 5-9-5.)

Note

Replace the capstan motor with the side panel of the unit down.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Tape guide adjusting screw driver (MW-261): J-6322-610-A

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-1.)
4. Remove the cassette compartment. (Refer to Section 1-2.)
5. Remove the front panel. (Refer to Section 1-1.)
6. Remove the DPR-160 board. (Refer to Section 1-9-2.)
7. Remove the FM-75 board. (Refer to Section 1-9-2.)
8. Remove the bottom plate. (Refer to Section 1-1.)

Removal

1. Removing the W Cleaner Assembly

Remove the W cleaner assembly.
(Refer to steps 1 and 2 in Section 3-3-4.)

Note

To remove the fixing screws of the capstan motor, remove the W cleaner assembly.

2. Removing the CONFI Head Assembly

Remove the CONFI head.
(Refer to step 3 in Section 3-7.)

3. Opening the SV-205 Board

(1) Put the unit on its left side panel down, and open the SV-205 board.
(Refer to Section 3-7.)

4. Removing the Capstan Motor

(1) Disconnect the harness from the connector on the capstan motor board.

(2) Remove the two screws while holding the capstan motor by hand.

Note

Be careful not to drop the capstan motor.

Installation

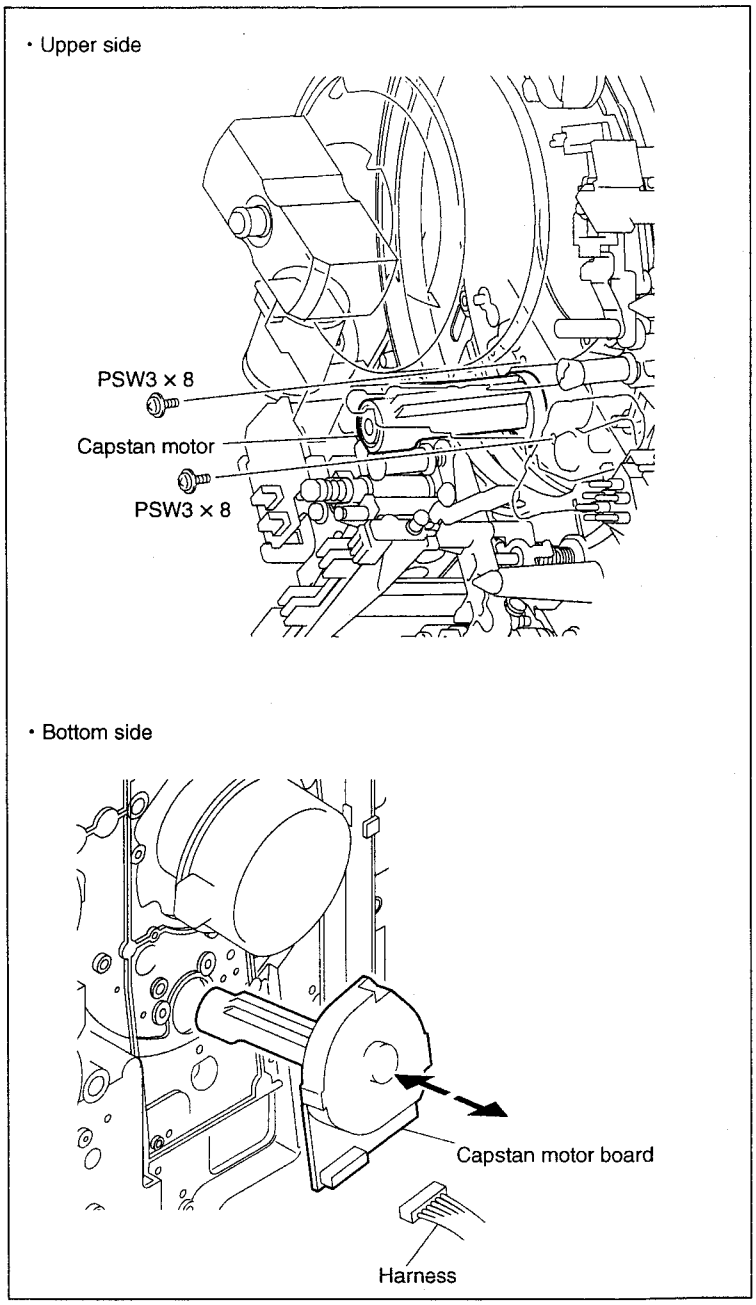
5. Installing the Capstan Motor

(1) Pass a new capstan motor through the hole of the MD base assembly positioning as shown in the figure and tighten the two screws.

Note

Be careful not to damage the capstan motor shaft when passing the capstan motor through the hole of the MD base assembly.

(2) Connect the harness disconnected in (1) of step 4 to the connector of the capstan motor board.



Remove/Install the Capstan Motor

6. Closing the SV-205 Board

Close the SV-205 board with the two screws.

7. Installing the CONFI Head Assembly

Install the CONFI head assembly.
(Refer to step 4 in Section 3-7.)

8. Cleaning

Clean the capstan motor shaft and CONFI head surface with a cleaning cloth moistened with cleaning fluid.
(Refer to Section 2-2-4 and 2-2-5.)

Note

After cleaning, wipe with a dry cleaning cloth.

9. Installing the W Cleaner Assembly

Install the W cleaner assembly.
(Refer to steps 4 to 6 in Section 3-5.)

Adjustment after Replacement

10. Confirming the Pinch Press Clearance

Refer to Section 3-10.

11. Confirming the Tape Running

Refer to Section 4-3.

12. Performing the CONFI Head Height

Refer to Section 4-9.

13. Confirming the Capstan Motor Operation

Refer to Section 5-4-13.
(CH06: Capstan Motor Check)

14. Performing the Servo Adjustment

Refer to Section 5-9-5.
(All Motors, Tension Sensors Adj)

3-12. Reel Table Assembly Replacement and Adjustment

3-12-1. Reel Table Assembly Replacement

Outline

Replacement

1. Removing the Reel Table Assembly
2. Installing the Reel Table Assembly

Adjustment after Replacement

3. Confirming the Reel Table Height (Refer to Section 3-12-2.)
4. Confirming the Reel Brake Clearance (Refer to Section 3-12-3.)
5. Confirming the Reel Brake Release Amount (Refer to Section 3-12-4.)

Note

How to replace the reel table assembly is the same on the supply and take-up sides.

Tools

- L-shaped wrench (1.5 mm): 7-700-736-05
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

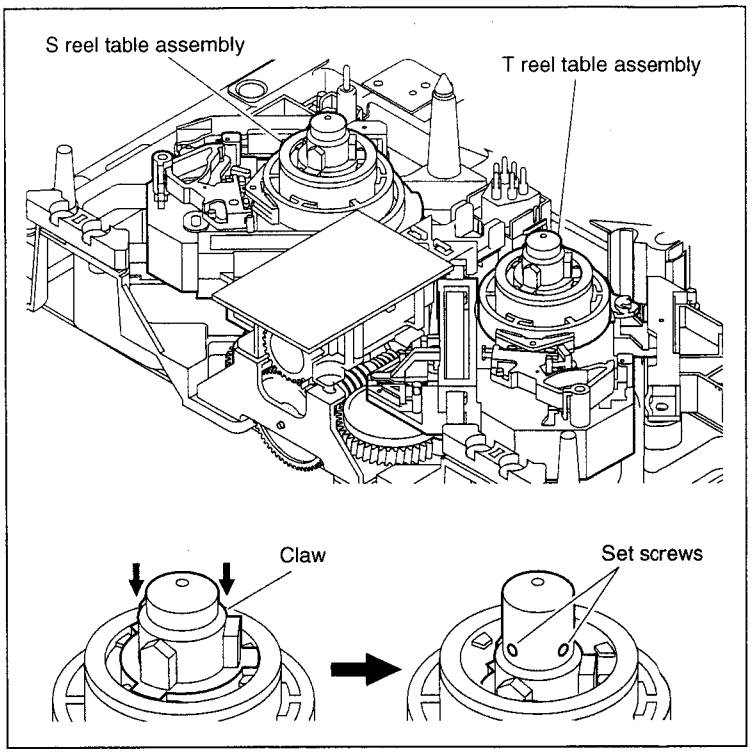
Removal

1. Removing the Reel Table Assembly

(1) Press down the claws of reel table assembly and slackew the two set screws.
(2) Remove the reel table assembly.

Note

When the reel table assembly is removed, a poly-slider washer for reel table height adjustment may adhere to it. In this case, remove the poly-slider washer from the reel table assembly and return it to the reel motor shaft.



Remove the Reel Table Assembly

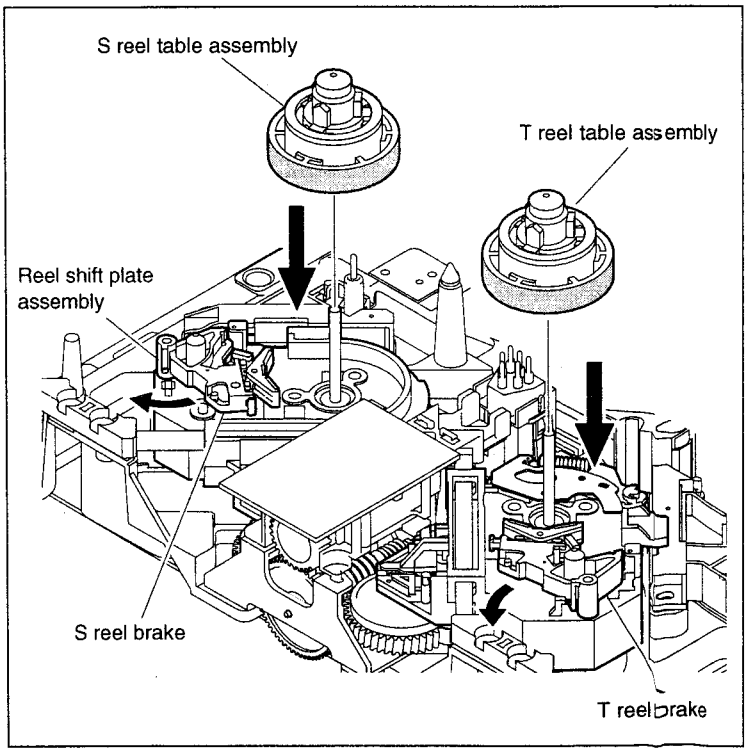
Installation

2. Installing the Reel Table Assembly

(1) Clean the reel table assembly along the circumference.
(2) Release the reel brake in the arrow direction and pass the reel table assembly through the reel motor shaft.

Note

Tighten the two set screws of the reel table assembly after confirming the reel table height.



Install the Reel Table Assembly

Adjustment after Replacement

3. Confirming the Reel Table Height

Refer to Section 3-12-2.

4. Confirming the Reel Brake Clearance

Refer to Section 3-12-3.

5. Confirming the Reel Brake Release Amount

Refer to Section 3-12-4.

3-12-2. Reel Table Height Adjustment

Notes

- Be sure to check the height of the reel table when a reel table is removed or when it is replaced.
- Perform the reel table height adjustment correctly.
  The height of the reel table is used as the reference for the tape path.

Tools

- Cassette reference plate (L) (MW-088): J-6320-880-A
- Reel table height gauge (MW-935): J-6329-350-A
- L-shaped wrench (1.5 mm): 7-700-736-05

Check

1. Removing the SE-606 Board

Remove the SE-606 board.
(Refer to Section 3-14.)

2. Installing the Cassette Reference Plate (L)

Place the cassette reference plate (L) positioning as shown in the figure, then set it on two cassette supports.

3. Setting in the L Cassette Position

Rotate the gear of reel shift motor clockwise as far as it will go.

4. Checking the Take-up Reel Table Height

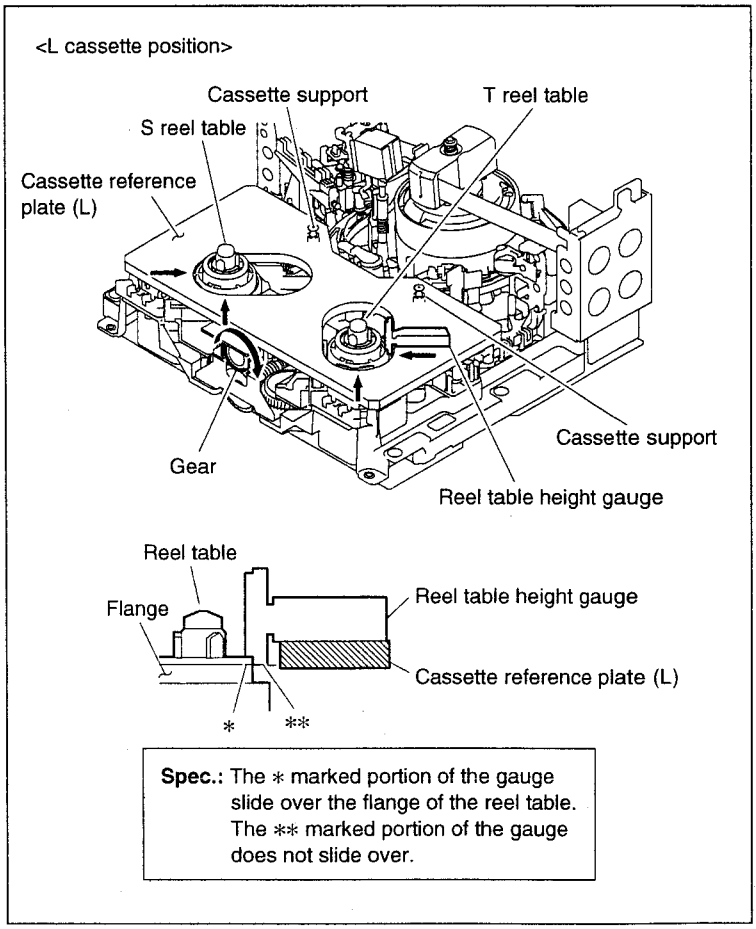
(1) Press the "T"-stamped side of the gauge against the take-up reel table from the directions indicated by the arrow.
(2) Check that the specification is satisfied while rotating the take-up reel table clockwise by one turn.

If the specification is not satisfied, perform steps 8 and 9.

5. Checking the Supply Reel Table Height

(1) Press the "S"-stamped side of the gauge against the supply reel table from the directions indicated by the arrow.
(2) Check that the specification is satisfied while rotating the supply reel table counter-clockwise by one turn.

If the specification is not satisfied, perform steps 8 and 9.


<L cassette position>
Cassette support
T reel table
S reel table
Cassette reference plate (L)
Cassette support
Gear
Reel table height gauge
Reel table
Flange
Reel table height gauge
Cassette reference plate (L)
*
**
Spec.: The * marked portion of the gauge slide over the flange of the reel table. The ** marked portion of the gauge does not slide over.

Reel Table Height Check (L)

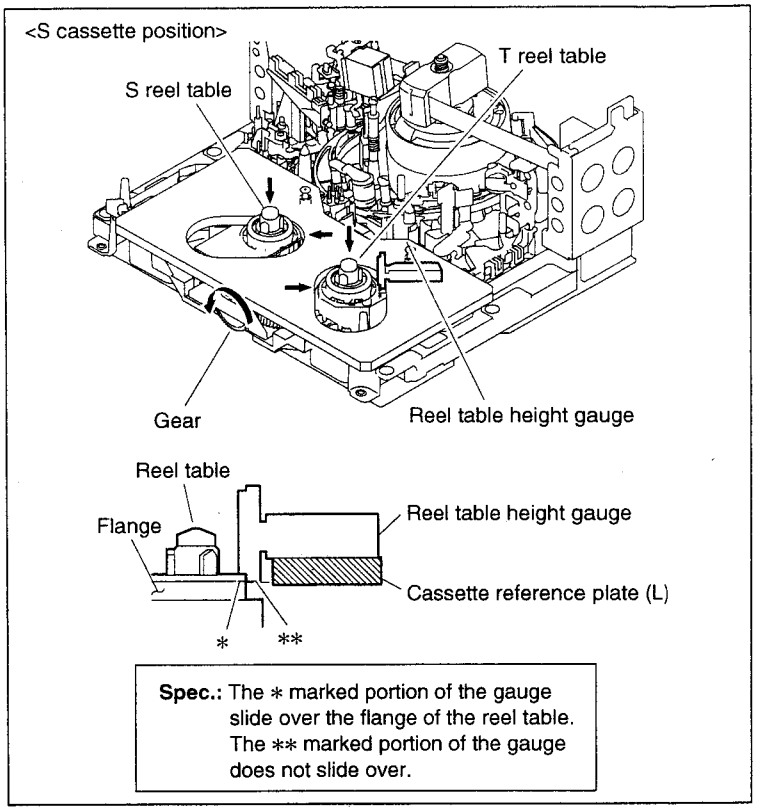
6. Setting in the S Cassette Position

Rotate the gear of reel shift motor counterclockwise as far as it will go.

7. Checking the Supply and Take-up Reel Table Height

Perform in the same way as in steps 4 and 5.

If the specification is not satisfied, perform steps 8 and later.
If the specifications are satisfied in both L and S cassette positions, perform steps 10 and later.


<S cassette position>
T reel table
S reel table
Gear
Reel table height gauge
Reel table
Flange
Reel table height gauge
Cassette reference plate (L)
*
**
Spec.: The * marked portion of the gauge slide over the flange of the reel table. The ** marked portion of the gauge does not slide over.

Reel Table Height Check (S)

Adjustment

8. Removing the Reel Table

9. Adjusting the Number of Poly-slider Washers

Adjust the number of poly-slider washers installed in the reel motor shaft so that the specifications are satisfied in both L and S cassette positions.

10. Removing the Cassette Reference Plate (L)

Remove the cassette reference plate (L) and reel table height gauge.

11. Tighten the Screws of the Reel Table Assembly

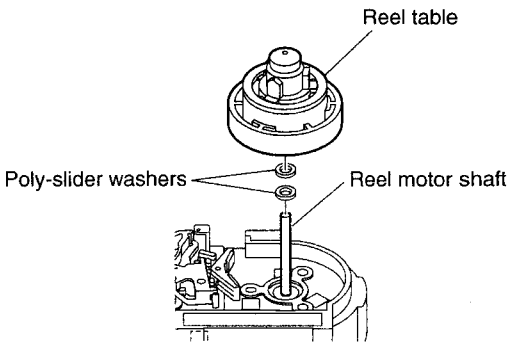
Press down the caws of reel table assembly and tighten the two set screws.

12. Rechecking the Reel Table Height

Refer to steps 3 through 7.

13. Installing the SE-606 Board

Install the SE-606 board.
(Refer to Section 3-14.)



• Poly-slider washer for adjustment

Diameter	Thickness	Part No.
4 mm	0.05 mm	3-188-108-01
	0.13 mm	3-701-441-01
	0.25 mm	3-701-441-11
	0.5 mm	3-701-441-21

Reel Table Height Adjustment

3-12-3. Reel Brake Clearance Check

Note

Be sure to check clearance of the reel brake when the reel table assembly is removed or when it is replaced.

Check

1. Checking the Take-up Reel Brake Clearance

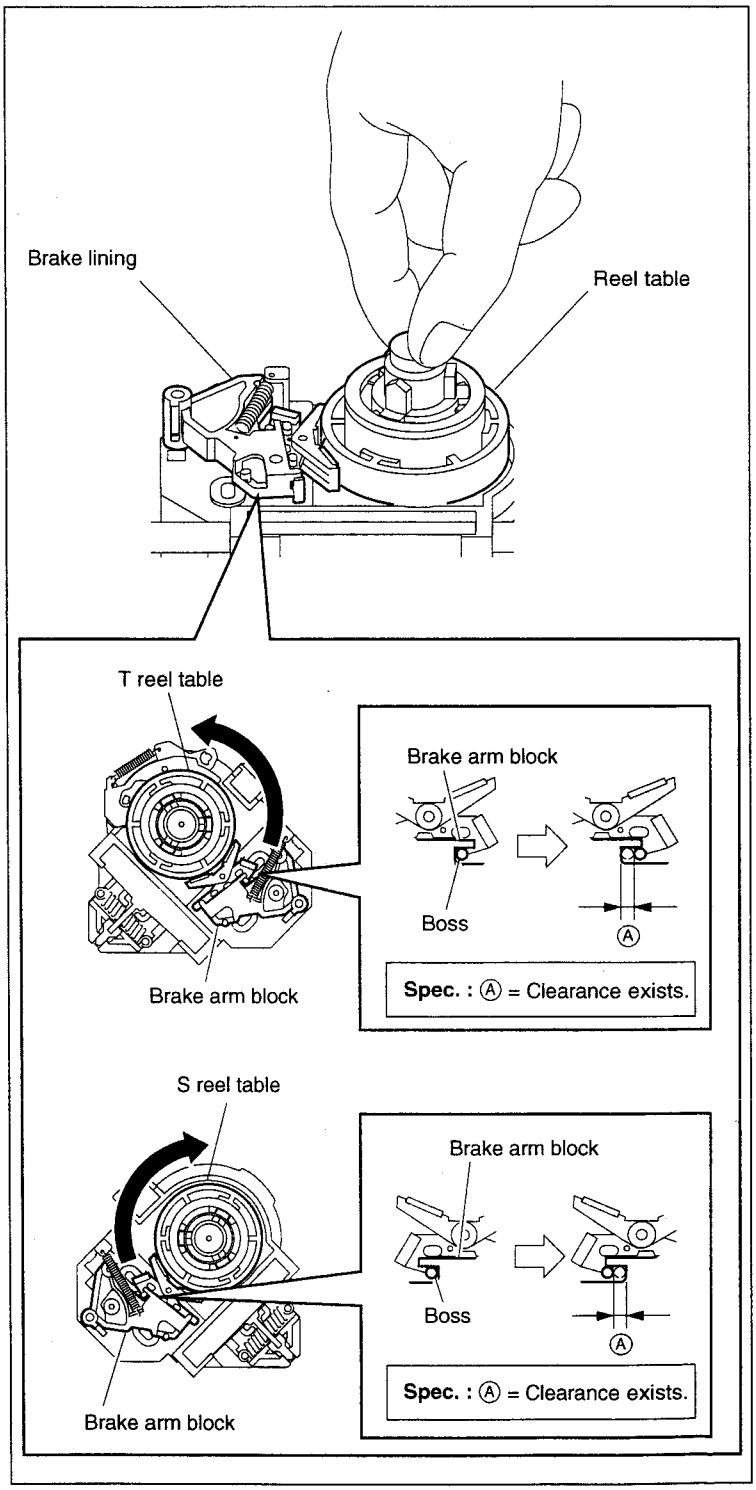
Rotate the take-up reel table counterclockwise by fingers.
At that time, check that a clearance exists between the brake arm block and boss.

If no clearance exists, replace the brake lining. (Refer to Section 3-13.)

2. Checking the Supply Reel Brake Clearance

Rotate the supply reel table clockwise by fingers.
At that time, check that a clearance exists between the brake arm block and boss.

If no clearance exists, replace the brake lining. (Refer to Section 3-13.)



Reel Brake Clearance Check

3-12-4. Reel Brake Release Amount Confirmation

Notes

Be sure to check the release amount of the reel brake when the reel table assembly is removed or when it is replaced.

Basic knowledge

The brake lining is pressed against the reel table when the power is off.
When the power is turned on, the brake lining is released.

Tool

- Wire clearance check gauge set: J-6152-450-A

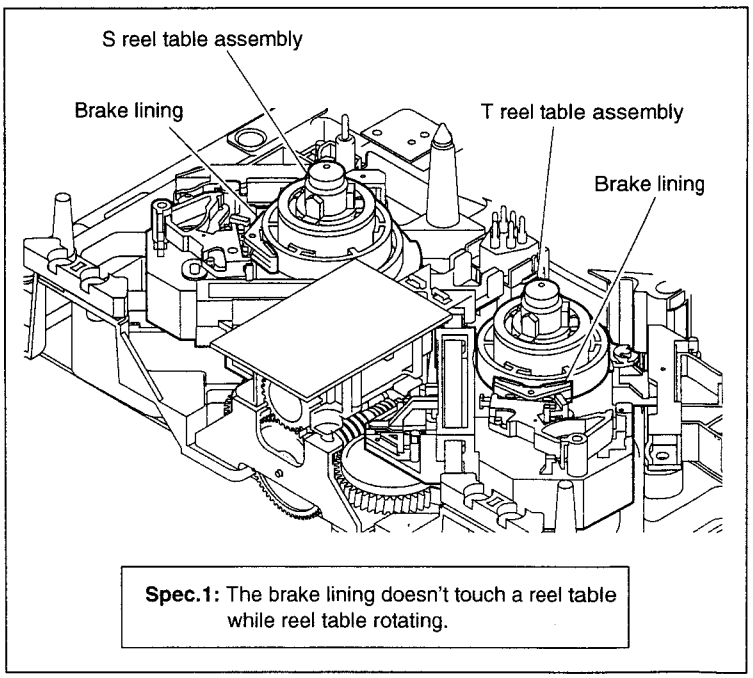
Check

1. Turning the Power On

2. Checking the Brake Release Amount

Check that the brake lining does not touch the reel table on the supply and take-up sides while a reel table is rotating. (Specification 1)

If the specification 1 is not satisfied, perform step 3 and higher.


S reel table assembly
Brake lining
T reel table assembly
Brake lining
Spec.1: The brake lining doesn't touch a reel table while reel table rotating.

Reel Brake Release Amount Check

Adjustment

3. Turning the Power Off

4. Removing the Reel Motor Plate Assembly

Remove the reel motor plate assembly.
(Refer to Section 3-14.)

5. Adjusting the Brake Solenoid Position

(1) Loosen the two fixing screws securing the brake solenoid.

(2) Push the iron core of the solenoid into the energized position.
Adjust the brake solenoid position according to the following procedure so that the clearance between the brake lining and reel table meets the specification.

Note

In this adjustment, push only the iron core. Never push other parts.

- Shift the brake solenoid in the B direction.
  ⇨ Clearance A is wider.
- Shift the brake solenoid in the C direction.
  ⇨ Clearance A is narrower.

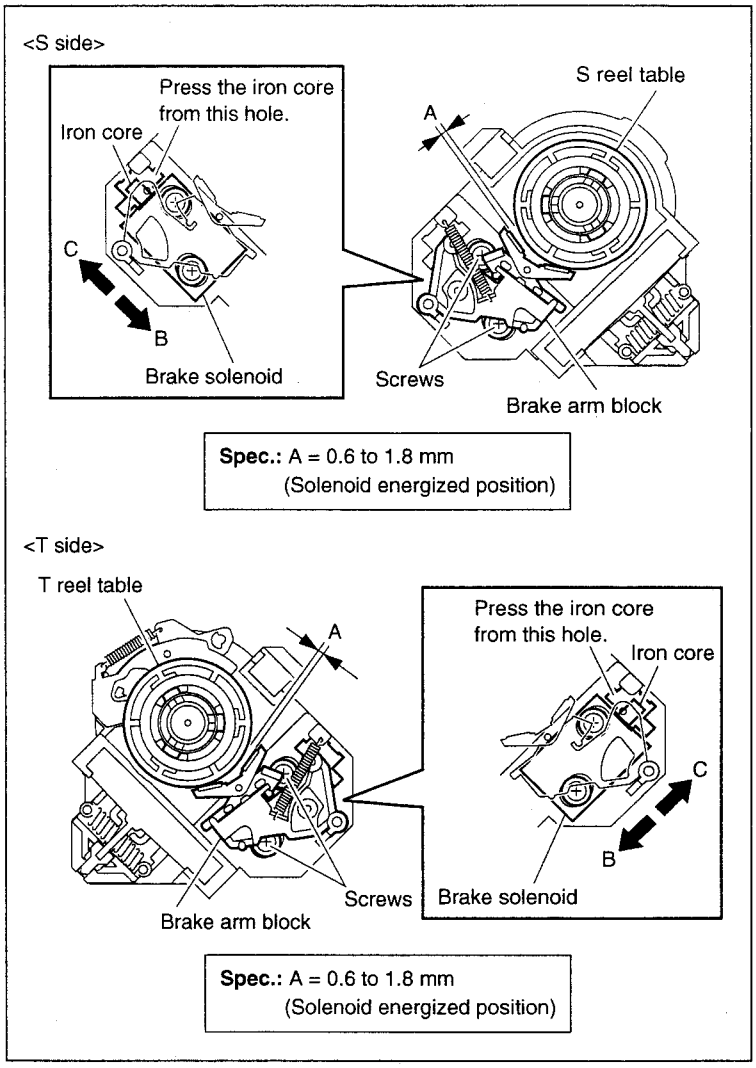
(3) Tighten the two screws loosened in step (1).

6. Confirming the Brake Release Amount

Confirm the brake release amount meets the specification.
(Refer to step 5 of this section.)

7. Installing the Reel Motor Plate Assembly

Install the reel motor plate assembly.
(Refer to Section 3-14.)



Remove the Reel Motor Plate Assembly

3-13. Brake Lining Replacement

Outline

Replacement

1. Removing the Brake Assembly
2. Installing the Brake Assembly

Adjustment after Replacement

3. Confirming the Reel Brake Clearance (Refer to Section 3-12-3.)
4. Confirming the Reel Brake Release Amount (Refer to Section 3-12-4.)

Note

- When the brake lining is worn, replace the whole blake assembly.
- How to replace the brake lining assembly is the same on the supply and take-up sides.

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the Brake Assembly

(1) Unhook the spring put on the reel motor plate assembly.
(2) Release the claw by pressing in the arrow direction, then remove the brake assembly.

Installation

2. Installing the Brake Assembly

(1) Pass a new brake assembly through the shaft of the reel motor plate assembly and fix it with the claw.
(2) Hook the spring to the reel motor plate assembly.

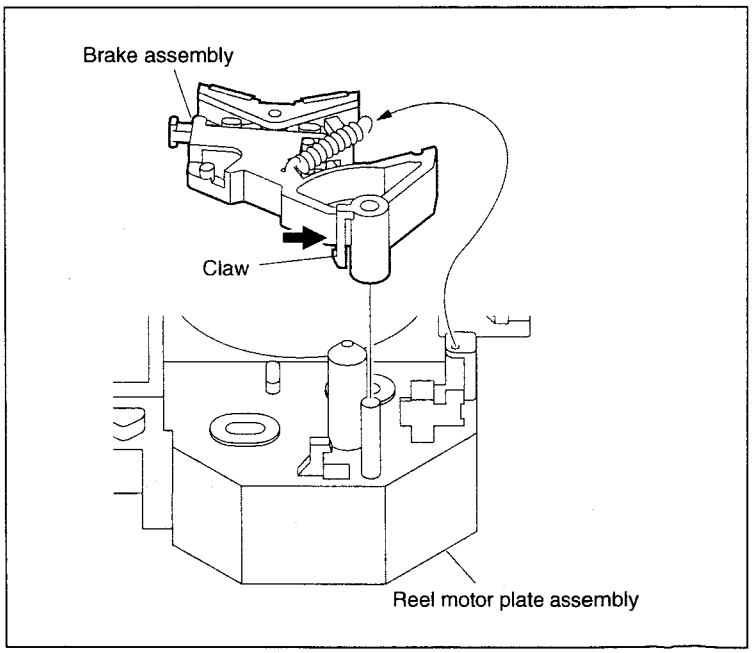
Adjustment after Replacement

3. Confirming the Reel Brake Clearance

Refer to Section 3-12-3.

4. Confirming the Reel Brake Release Amount

Refer to Section 3-12-4.



Remove/Install the Brake Lining

3-14. Reel Motor Plate Assembly Replacement

Outline

Replacement

1. Removing the SE-606 Board
2. Removing the ME Wire (T-side only)
3. Removing the Shaft Holder
4. Remove the Reel Motor Plate Assembly
5. Installing the Flexible Board
6. Installing the Slide Shaft
7. Installing the Reel Motor Plate Assembly
8. Installing the ME Wire (T-side only)
9. Installing the Shaft Holder
10. Applying Grease to the Slide Shaft

Adjustment after Replacement

11. Confirming the Reel Brake Clearance (Refer to Section 3-12-3.)
12. Confirming the Reel Brake Release Amount (Refer to Section 3-12-4.)
13. Confirming the Reel Motor Operation
    (CH07: S, T Reel Motor Check)
    (Refer to Section 5-4-13.)
14. Performing the Servo Adjustment
    (Refer to Section 5-9-5.)
    (All Motors, Tension Sensors Adj)

Note

1. In this unit, it is not necessary to perform the traditional reel motor shaft slantness adjustment after the reel motor plate assembly replacement.
2. When replacing the reel motor, be sure to perform the replacement as the reel motor plate assembly. Never replace the single reel motor.
3. The parts making up the reel motor plate assembly is different between S side and T side. However, how to replace the reel motor assembly is the same for both sides.

Tools

- Torque screwdriver (12 kg•cm)(JB-5252): J-6252-520-A
- Torque screwdriver's bit (+3 mm, l = 90 mm): J-6323-430-A
- Grease (SGL-601): 7-651-000-10
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

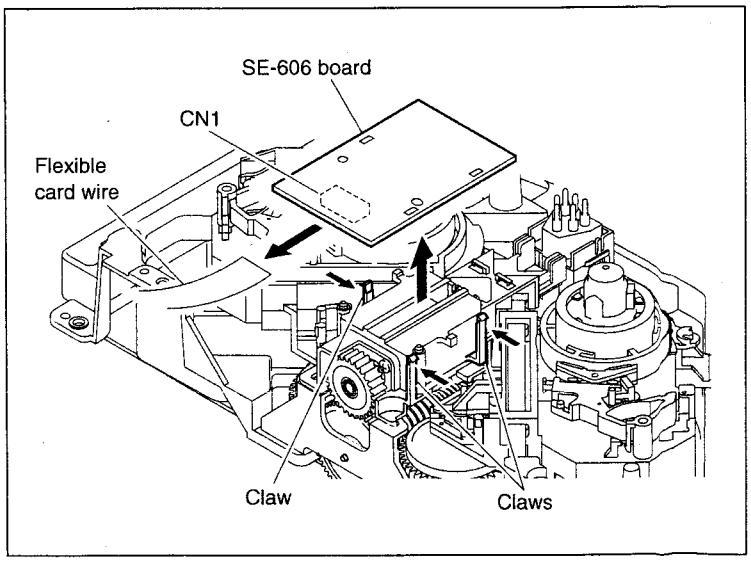
Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the SE-606 Board

(1) Press the three claws in the arrow directions to remove the SE-606 board.
(2) Disconnect the flexible card wire from the connector CN1 on the SE-606 broad.

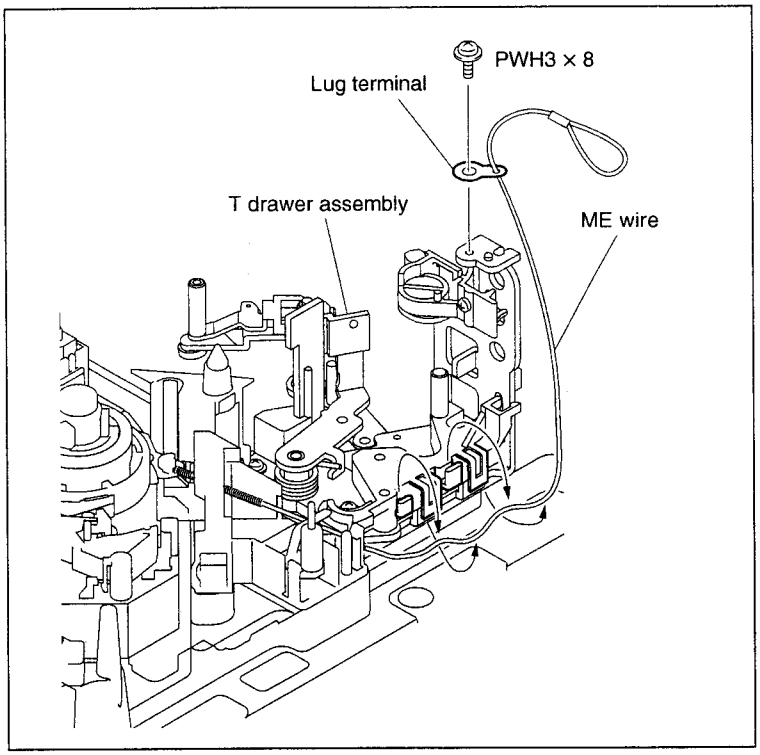


Disconnect the Flat Cable of the SE-606 Board

2. Removing the ME Wire (T-side only)

(1) Remove the screw securing the lug terminal of the ME wire.

(2) Remove the ME wire from the T drawer assembly as shown in the figure.



Remove the ME Wire

3. Removing the Shaft Holder

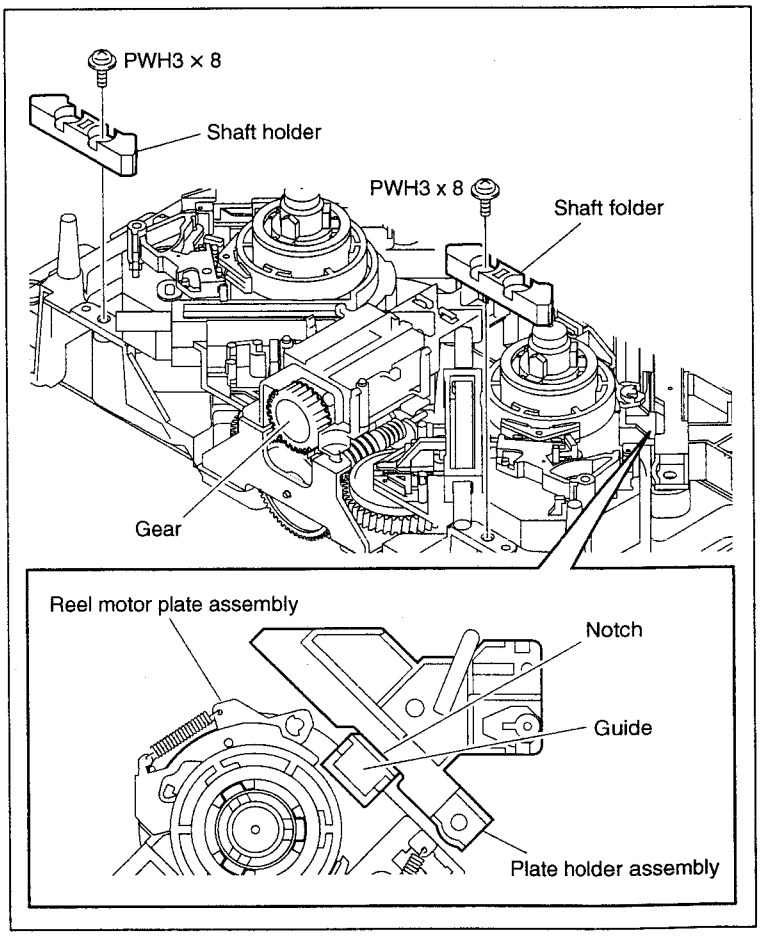
(1) Shift the reel motor plate assembly by turning the gear of reel shift motor.

(2) Align the guide portion of the reel motor plate assembly with the notch of the plate holder assembly.

Note

The reel motor plate assembly cannot be removed in the S or T cassette position.

(3) Remove the screw to remove the shaft holder.



Remove the Shaft Holder

4. Removing the Reel Motor Plate Assembly

(1) Pull the slide shaft toward the front panel and take it off the motor holder assembly.
(2) Lift straight up the reel motor plate assembly and disconnect the flexible board from the reel motor board.
(3) Pull out the slide shaft from the reel motor plate assembly.
(4) Wipe off grease remained on the surface of the slide shaft with a cloth.

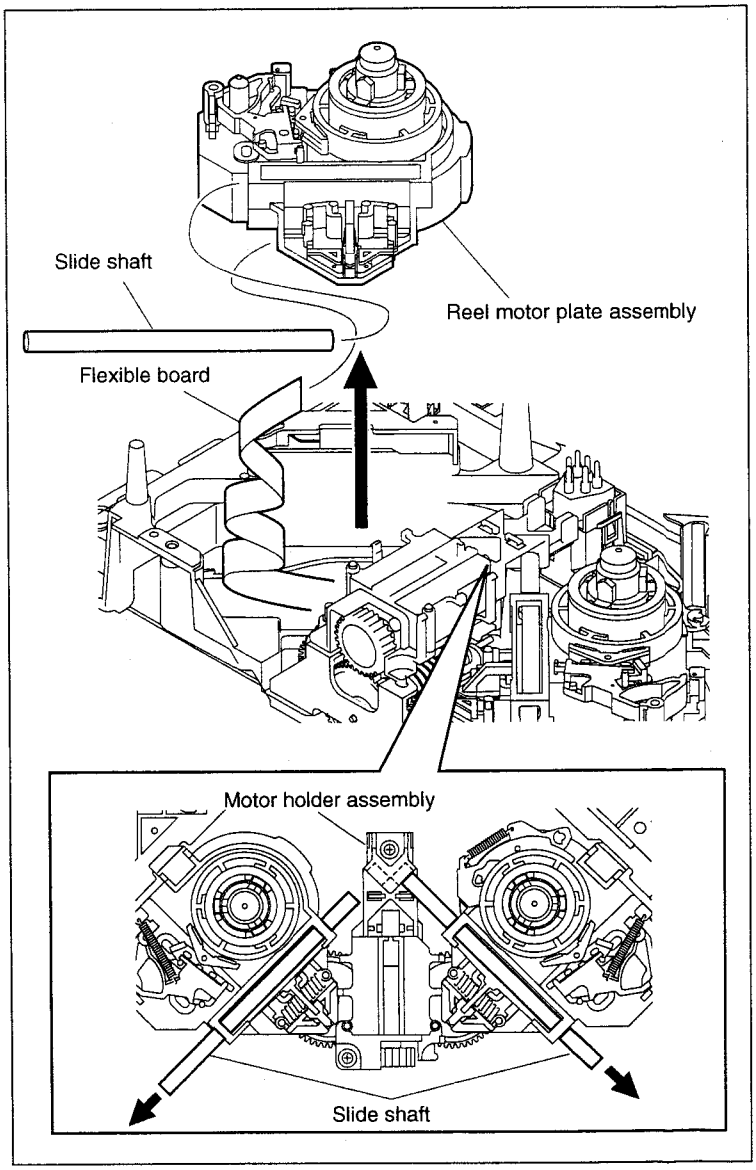
CAUTION

- Be careful not to adhere grease seared the slide shaft to another parts.
- Be careful not to cause damage to the slide shaft during removal.

Installation

5. Connecting the flexible board

Connect the flexible board disconnected in step 4 to a reel motor board of a new reel motor plate assembly.



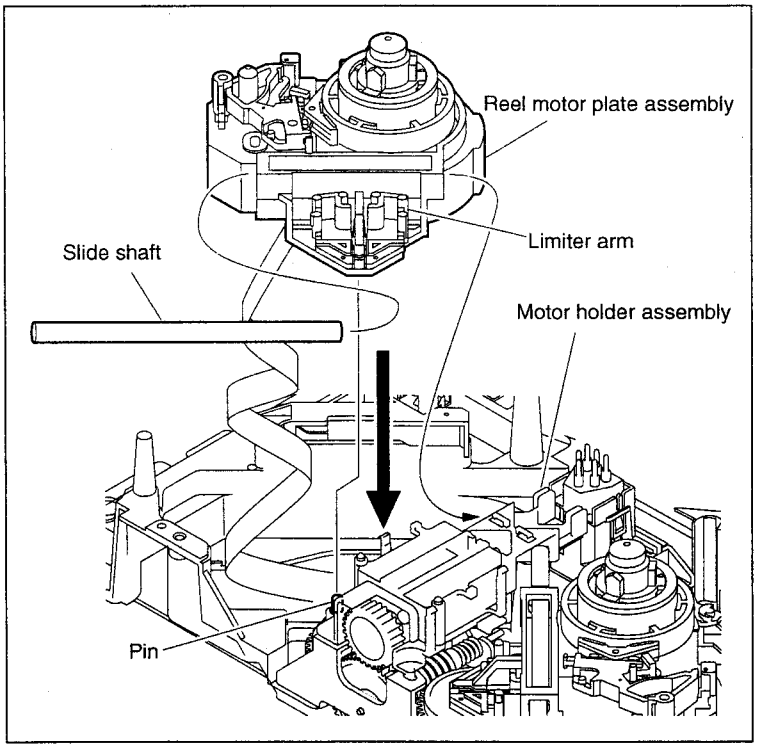
Remove the Reel Motor Plate Assembly

6. Installing the slide shaft

Insert the slide shaft removed in step 4 in the hole of the reel motor plate assembly.

7. Installing the Reel Motor Plate assembly

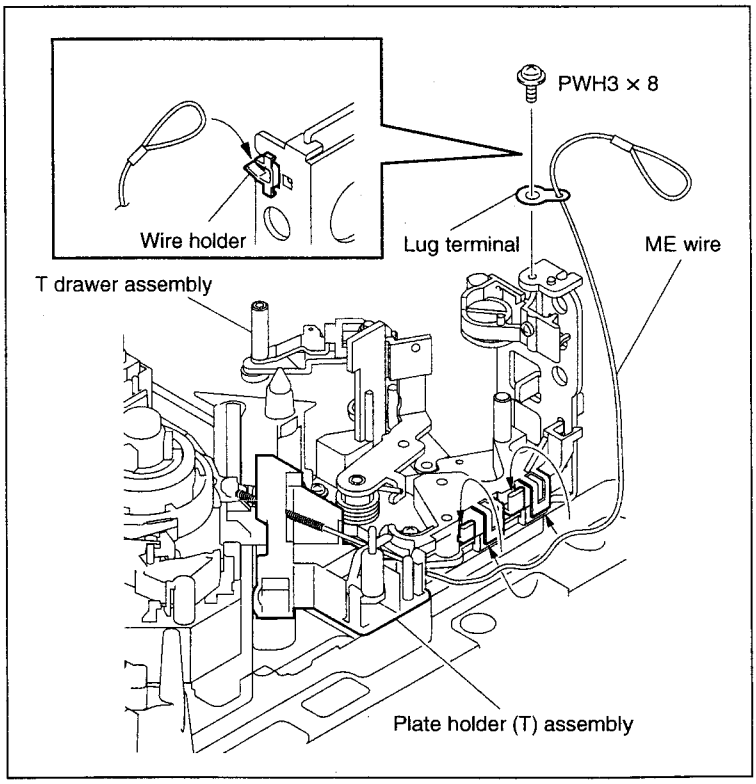
(1) Keeping the both states that the guide portion of the reel motor plate assembly is aligned with the notch of the plate holder assembly and the pin of drive gear assembly will be able to be insert between the limiter arm, install the RS table block assembly.
(2) Insert the slide shaft in the motor holder assembly.



Install the Reel Motor Plate Assembly

8. Installing the ME Wire (T-side only)

(1) Pass the ME wire and the lug terminal through the plate holder (T) assembly.
(2) Install the ME wire in the T drawer assembly as shown in the figure and fix the lug terminal with the screw.
(3) Hang the tip of the ME wire on the wire holder of attachment fitting (C) and fix it.



Install the ME Wire

9. Installing the Shaft Holder

Align the projection of the shaft holder with the hole of the base plate and fix it with the screw.

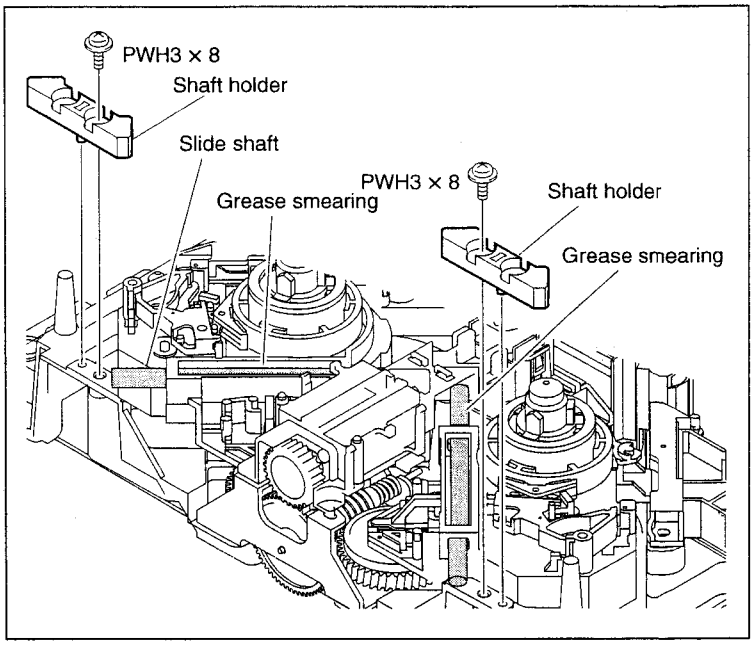
10. Applying Grease on the Slide Shaft

(1) Apply a very small portion of grease on the slide shaft and spread grease over the whole shaft.

Note

Use care not to put grease on other parts in vicinity.

(2) Confirm that the reel motor plate assembly moves smoothly when bringing to the S cassette position and L cassette position.



Install the Shaft Holder and Apply Grease

Adjustment after Replacement

11. Confirming the Reel Brake Clearance

Refer to Section 3-12-3.

12. Confirming the Reel Brake Release Amount

Refer to Section 3-12-4.

13. Confirming the Reel Motor Operation

Refer to Section 5-4-13.
(CH07: S, T Reel Motor Check)

14. Performing Servo Adjustment

Refer to Section 5-9-5.
(All Motors, Tension Sensors Adj)

3-15. Reel Shift Motor Replacement

Outline

Replacement

1. Removing the Reel Motor Plate Assembly (Refer to steps 1 to 4 in Section 3-14.)
2. Removing the PA Guard
3. Removing the Motor Holder Assembly
4. Installing the Motor Holder Assembly
5. Installing the PA Guard
6. Installing the Reel Motor Plate Assembly (Refer to steps 5 to 10 in Section 3-14.)

Adjustment after Replacement

7. Confirming the Reel Shift Motor Operation
   (CH02: Reel Shift Motor Check) (Refer to Section 5-4-13.)

Note

When a reel shit motor needs replacing, replace the whole motor holder assembly.

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

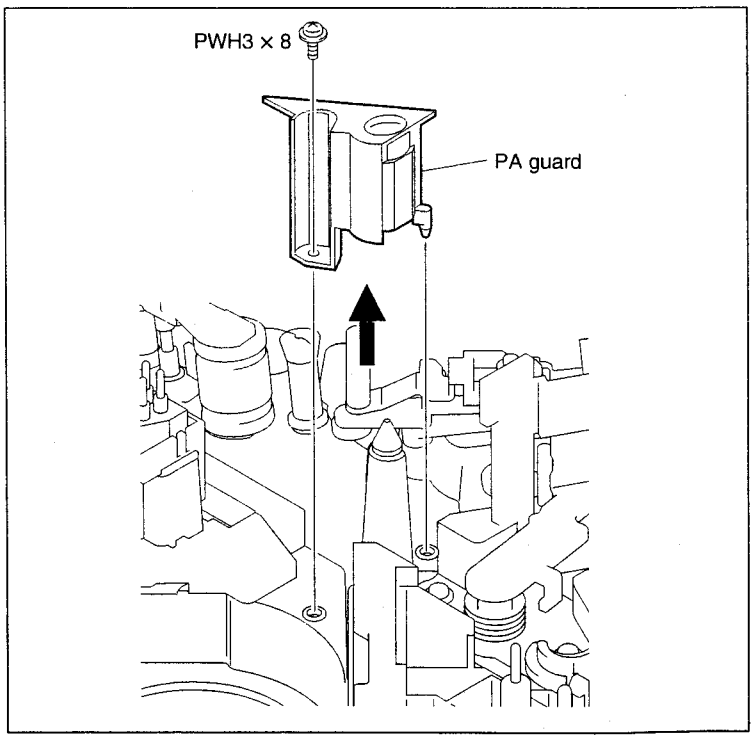
Removal

1. Removing the Reel Motor Plate Assembly

Remove the reel motor plate assembly.
(Refer to steps 1 to 4 in Section 3-14.)

2. Removing the PA Guard

Remove the screw to remove the PA guard.



Removing the PA Guard

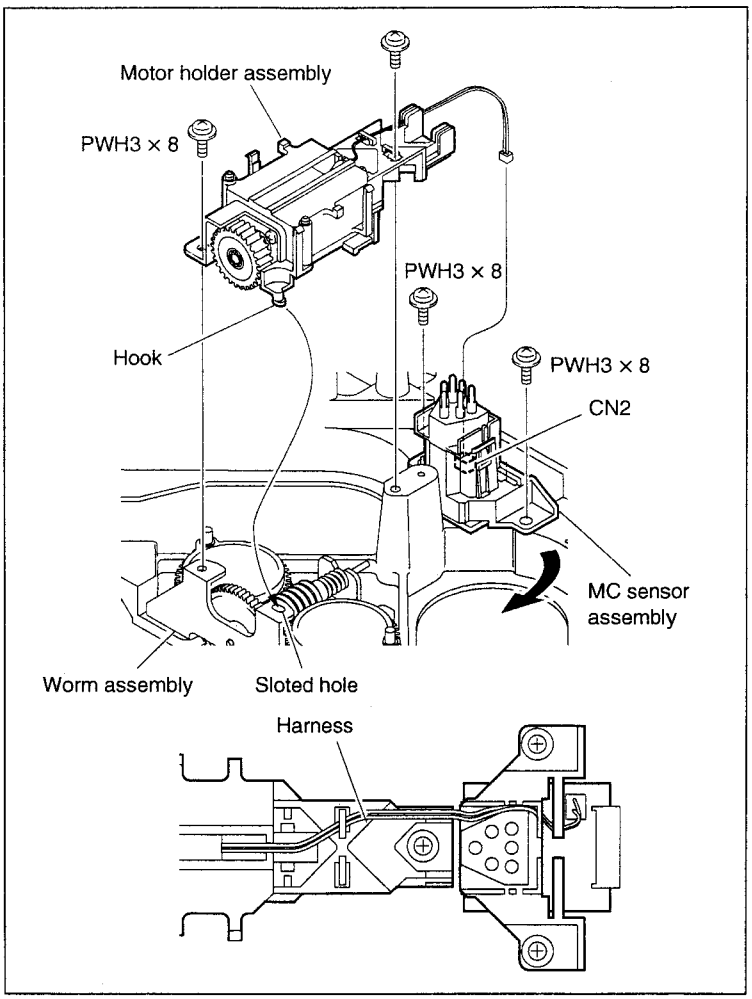
3. Removing the Motor Holder Assembly

(1) Remove the two screws and shift the MC sensor assembly in the arrow direction.
(2) Disconnect the connector CN2 on the MC sensor assembly.
(3) Remove the two screws to remove the motor holder assembly.

Installation

4. Installing the Motor Holder Assembly

(1) Put the hook of a new motor holder assembly in the sloted hole of the worm assembly and fix it with the two screws.
(2) Connect the harness of the motor holder assembly to the connector CN2 on the MC sensor board and route the harness as shown in the figure.
(3) Install the MC sensor assembly with the two screws.



Removing/Installing the Motor Holder Assembly

5. Installing the PA Guard

Install the PA guard with the screw.

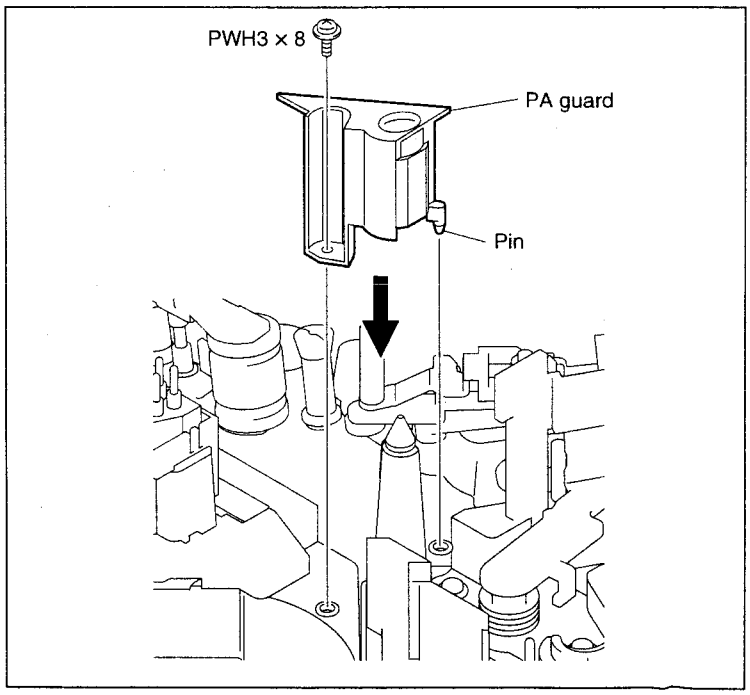
6. Installing the Reel Motor Plate Assembly

Install the reel motor plate assembly.
(Refer to steps 5 to 10 in Section 3-14.)

Adjustment after replacement

7. Confirming the Reel Shift Motor Operation

(CH02: Reel Shift Motor Check)
Refer to Section 5-4-13.



Installing the PA Guard

3-16. Reel Shift Gear Replacement

Outline

Replacement

1. Removing the Reel Motor Plate Assembly (Refer to steps 1 to 4 in Section 3-14.)
2. Removing the PA Guard (Refer to step 2 in Section 3-15.)
3. Removing the Motor Holder Assembly (Refer to step 3 in Section 3-15.)
4. Removing the Drive Gear Assembly
5. Removing the Worm Assembly
6. Installing the Worm Assembly
7. Installing the Drive Gear
8. Installing the Motor Holder Assembly (Refer to step 4 in Section 3-15.)
9. Installing the PA Guard (Refer to step 5 in Section 3-15.)
10. Installing the Reel Motor Plate Assembly (Refer to steps 5 to 10 in Section 3-14.)

Adjustment after Replacement

11. Confirming the Reel Shift Motor Operation
    (CH02: Reel Shift Motor Check) (Refer to Section 5-4-13.)

Note

- When replacing the reel shift gear, replace the whole drive gear (S) / (T) assembly and the whole worm assembly.
- When replacing the drive gear (S) / (T) assembly or worm assembly, prepare a new stop washer.
  Stop washer: 3-650-537-01

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the Reel Motor Plate Assembly

Remove the reel motor plate assembly.
(Refer to steps 1 to 4 in Section 3-14.)

2. Removing the PA Guard

Remove the PA guard.
(Refer to step 2 in Section 3-15.)

3. Removing the Motor Holder Assembly

Remove the motor holder assembly.
(Refer to step 3 in Section 3-15.)

4. Removing the Drive Gear Assembly

Remove the each stop washer to remove the driving gear (S) assembly and driving gear (T) assemblies.

5. Removing the Worm Assembly

Remove the two screws to remove the worm assembly.

Installation

6. Installing the Worm Assembly

(1) Wipe off grease from a new worm assembly and clean it.
(2) Apply grease on the worm gear of the worm assembly.
(3) Align the positioning hole of the worm assembly with the positioning pin of the MD base assembly and fix it with the two screws.

7. Installing the Drive Gear Assembly

(1) Pass the driving gear (S) and (T) assemblies on the shafts of the MD base assembly respectively.
(2) Engage the marked portions of both driving gear (S) and (T) assemblies with the same groove of the worm gear.
(3) Fix the driving gear (S) and (T) assemblies with a new stop washer.

8. Installing the Motor Holder Assembly

Install the motor holder assembly.
(Refer to step 4 in Section 3-15.)

9. Installing the PA Guard

Install the PA guard.
(Refer to step 5 in Section 3-15.)

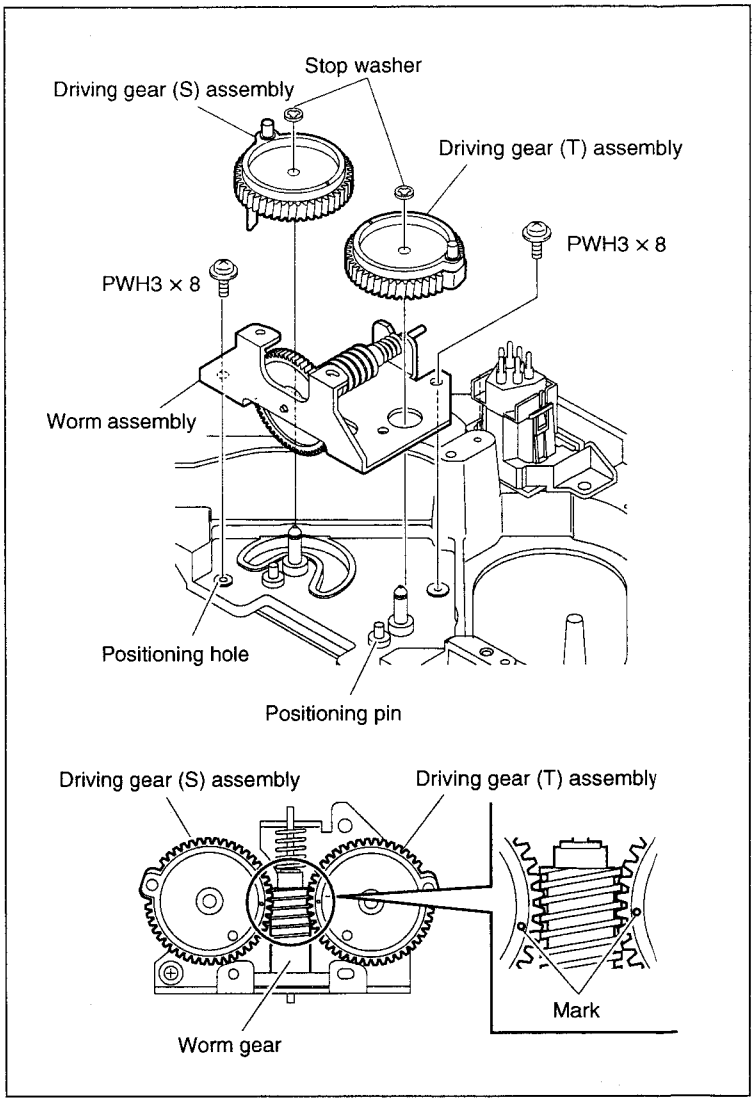
10. Installing the Reel Motor Plate Assembly

Install the reel motor plate assembly.
(Refer to steps 5 to 10 in Section 3-14.)

Adjustment after Replacement

11. Confirming the Reel Shift Motor Operation

(CH02: Reel shift Motor Check)
(Refer to Section 5-4-13.)



Installing the Drive Gear Assembly

3-17. Tape Guide Replacement

Note

When replacing the tape guide, use extreme care no to damage the drum.

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

List of Tape Guide

Name	Parts to be replaced	Method	Adjustment after replacement
TG-0	S plate assembly	Refer to Section 7-2 (Exploded view).	Refer to Section 4-3. Tape Running Check and Adjustment
TG-1	S tension regulator assembly	Refer to Section 3-21.	Refer to Section 4-4. Tracking Check and Adjustment
TG-2	TG-2 assembly	Refer to Section 7-2 (Exploded view).	
TG-3	TG-3 assembly	Refer to Section 7-2 (Exploded view).	
TG-4	Ring assembly	Refer to Section 3-20.	
TG-5	Pinch arm assembly	Refer to Section 3-9.	
TG-6	Ring assembly	Refer to Section 3-20.	
TG-7	Ring assembly	Refer to Section 3-20.	
TG-8	T tension regulator assembly	Refer to Section 3-22.	
TG-9	Ring assembly	Refer to Section 3-20.	
TG-10	T drawer assembly	Refer to Section 3-23-1.	Refer to Section 3-23-2. Slant Guide Inclination Adjustment
Slant guide			Refer to Section 4-3. Tape Running Check and Adjustment
			Refer to Section 4-4. Tracking Check and Adjustment

3-18. Tape Cleaner Replacement

Note

Do not touch the tape cleaner with bare hands.
The tape cleaner has a sharp edge, which may cause a hand cut.

Outline

Replacement

1. Removing the Tape Cleaner
2. Installing the Tape Cleaner

Note

Adjustment after the tape cleaner replacement is not required.

Tools

- Torque screwdriver (6 kg•cm)(JB-5251): J-6252-510-A
- Torque screwdriver's bit (+2 mm, l = 75 mm): J-6323-420-A

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the Tape Cleaner

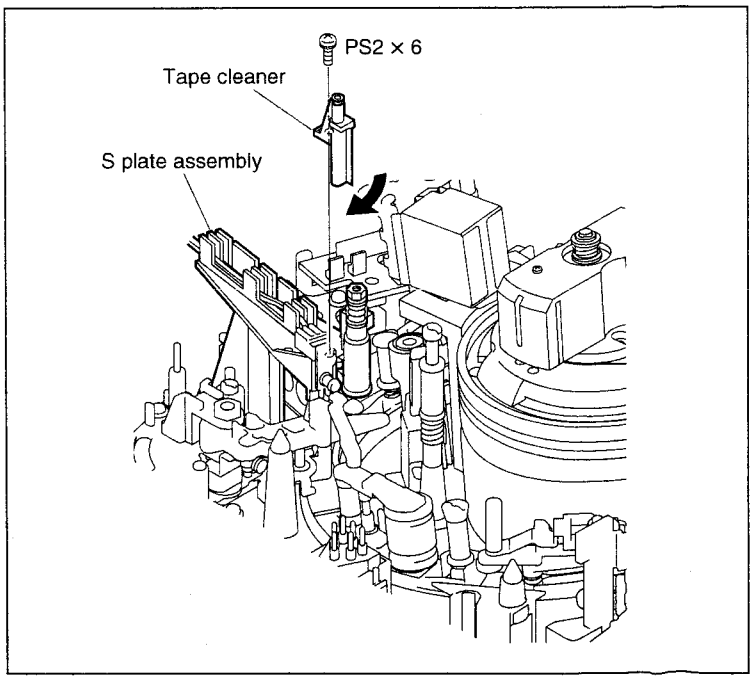
Remove the screw, then remove the tape cleaner from the S plate assembly.

Installation

2. Installing the Tape Cleaner

Tighten the screw while moving a new tape cleaner clockwise.

Tightening torque: 19.6×10^{-2} N•m {2 kgf•cm}



Remove/Install the Tape Cleaner

3-19. Gear Box Assembly Replacement

Outline

Replacement

1. Disconnecting the Harness (1) (CN-233/HN-268 Board)
2. Removing the Gear Box Assembly
3. Disconnecting the Harnesses (2)
   (CN920/CCM-15 Board, CN904/PTC-54 Board)
4. Connecting the Harnesses (1) (CN920/CCM-15 Board, CN904/PTC-54 Board)
5. Installing the Gear Box Assembly
6. Connecting the Harness (2) (CN233/HN-268 Board)

Adjustment after Replacement

7. Confirming the Threading Motor Operation (CH01: Threading Motor Check)
   (Refer to Section 5-4-13.)

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD. (Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Disconnecting the Harness (1)

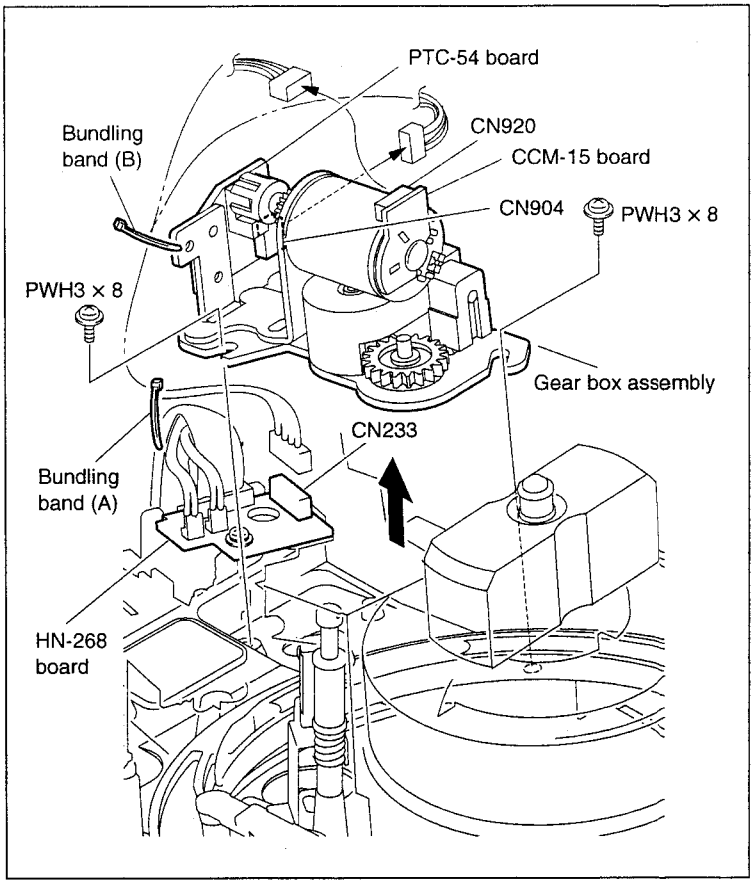
Release the harness from the bundling band (A) and disconnect the harness from the connector CN233 of the HN-268 board.

2. Removing the Gearbox Assembly

Remove the two screws to remove the gear box assembly.

3. Disconnecting the Harnesses (2)

Release the harnesses from the bundling band (B) and disconnect the harnesses from the connectors CN920 of the CCM-15 board and CN904 of the PTC-54 board.



Remove the Gear Box Assembly

Installation

4. Connecting the Harnesses (1)

Connect the harnesses to the connectors CN920 of the CCM-15 board and CN904 of the PTC-54 board and fix the harnesses with the bundling band (B).

5. Installing the Gearbox Assembly

(1) Turn the threading ring manually and move the pinch roller to the front of the pinch press assembly.

Note

Move the hole of the threading ring in order to check the engagement of the gear when installing the gear box assembly.

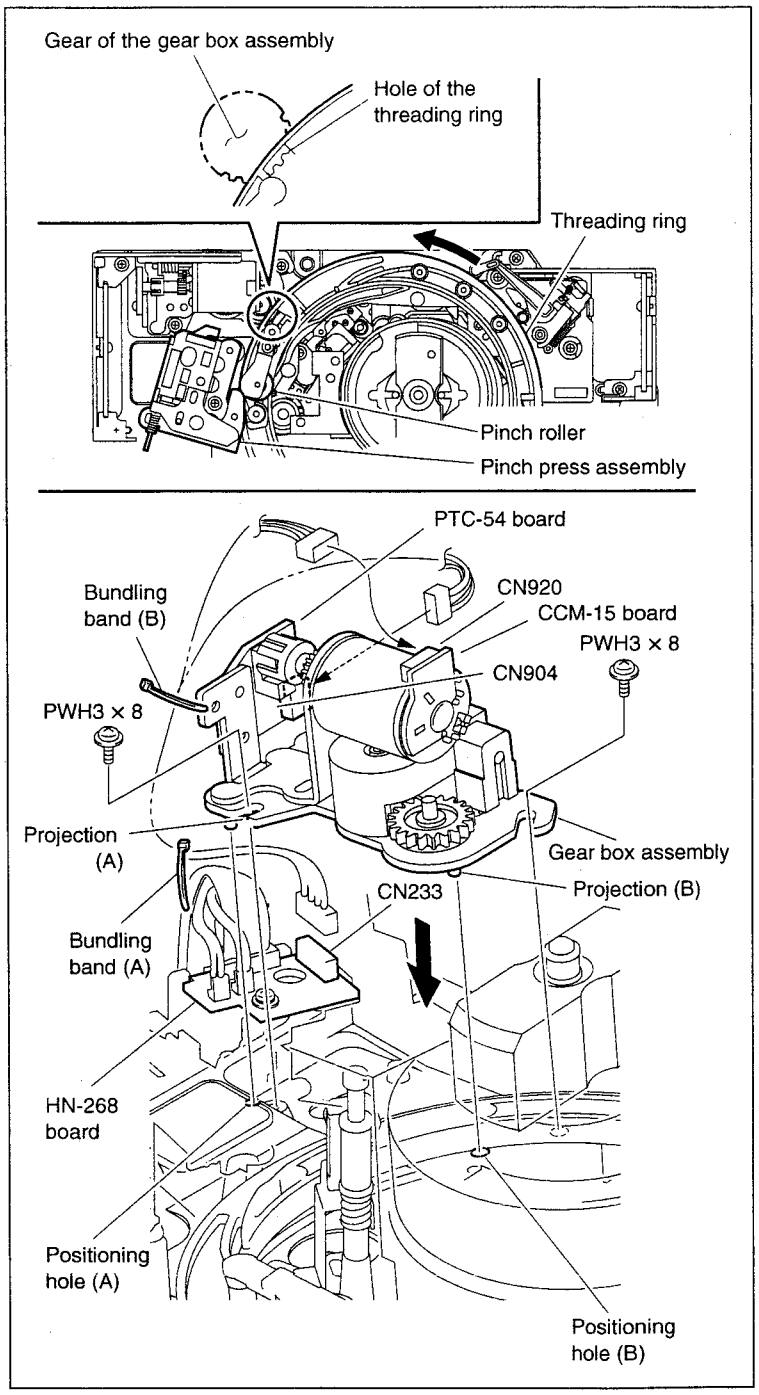
(2) Insert the projection (A) of the gear box assembly in the positioning hole (A) of the MD base assembly.
(3) Lift the threading ring assembly and engage the gear of the gear box assembly with the gear of the threading ring assembly.
(4) Insert the projection (B) of the gear box assembly in the positioning hole (B) of the MD base assembly.
(5) Check from the hole of the threading ring whether the gear of the gear box assembly engages with the gear of the threading ring.
(6) Fix the gear box assembly with the two screws.

6. Connecting the Harnesses (2)

Connect the harness to the connector CN233 of the HN-268 board and fix it with the bundling band (A).

Note

Avoid contacting the harness to the drive portion of the gear box assembly.



Installing the Gearbox Assembly

Adjustment after Replacement

7. Confirming the Threading Motor Operation

Refer to Section 5-4-13.
(CH01: Threading Motor Check)

3-20. Threading Ring Assembly Replacement

Outline

Replacement

1. Disconnecting the Flexible Boards (CN2/HN-258 Board, CN2/CT-205 Board)
2. Disconnecting the Harness (CTL/TC Head Board)
3. Removing the PA Guard (Refer to step 2 in Section 3-15.)
4. Removing the W Cleaner Assembly (Refer to steps 1 and 2 in Section 3-5.)
5. Removing the CL Guide Rail
6. Removing the Pinch Press Assembly (Refer to steps 1 and 2 in Section 3-10.)
7. Removing the S Plate Assembly
8. Removing the S Tension Regulator Assembly
   (Refer to step 1 in Section 3-21.)
9. Removing the T Drawer Assembly (Refer to steps 1 and 2 in Section 3-23.)
10. Removing the Gear Box Assembly (Refer to steps 1 to 3 in Section 3-18.)
11. Removing the Ring Roller
12. Removing the Threading Ring Assembly
13. Cleaning (Threading Ring Assembly)
14. Installing the Threading Ring Assembly
15. Installing the Ring Roller
16. Installing the Gear Box Assembly (Refer to steps 4 to 6 in Section 3-19.)
17. Confirming the Threading Ring Operation
18. Installing the S Plate Assembly
19. Installing the Pinch Press Assembly (Refer to steps 3 and 4 in Section 3-10.)
20. Putting the Unit into the Unthreading End Mode
21. Installing the S Tension Regulator Assembly (Refer to step 2 in Section 3-21.)
22. Installing the T Drawer Assembly (Refer to step 3 in Section 3-23.)
23. Confirming the T Drawer Assembly Operation (Refer to step 6 in Section 3-23.)
24. Installing the CL Guide Rail
25. Confirming the CL Arm Assembly Operation (Refer to step 3 in Section 3-6.)
26. Installing the W Cleaner Assembly (Refer to steps 4 to 6 in Section 3-5.)
27. Installing the PA Guard (Refer to step 5 in Section 3-15.)
28. Connecting the Flexible Boards (CN2/HN-258 Board, CN2/CT-205 Board)
29. Connecting the Harness (CTL/TC Head Board)

Adjustment after Replacement

30. Confirming the Cleaning Solenoid Operation
    (CH05: Pinch Poller and Cleaning Roller Solenoid Check)
    (Refer to Section 5-4-13.)
31. Confirming the Pinch Press Clearance (Refer to step 5 in Section 3-10.)
32. Confirming the Tape Running (Refer to Section 4-3.)

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD.(Refer to Section 1-2.)
4. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Disconnecting the Flexible Boards

(1) Disconnect the flexible board from the connector CN2 of the HN-258 board.
(2) Disconnect the flexible board from the connector CN2 of the CT-205 board.

2. Disconnecting the Harness

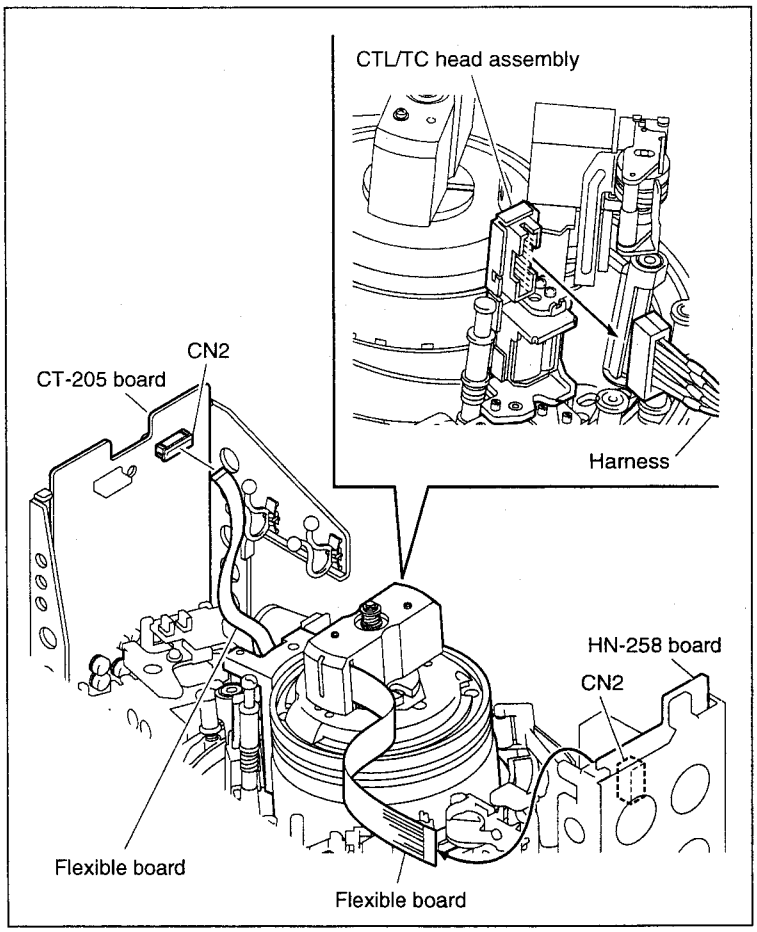
Disconnect the harness from the CTL/TC head Assembly.

3. Removing the PA Guard

Remove the PA guard.
(Refer to step 2 in Section 3-15.)

4. Removing the W Cleaner Assembly

Remove the W cleaner assembly.
(Refer to steps 1 and 2 in Section 3-5.)



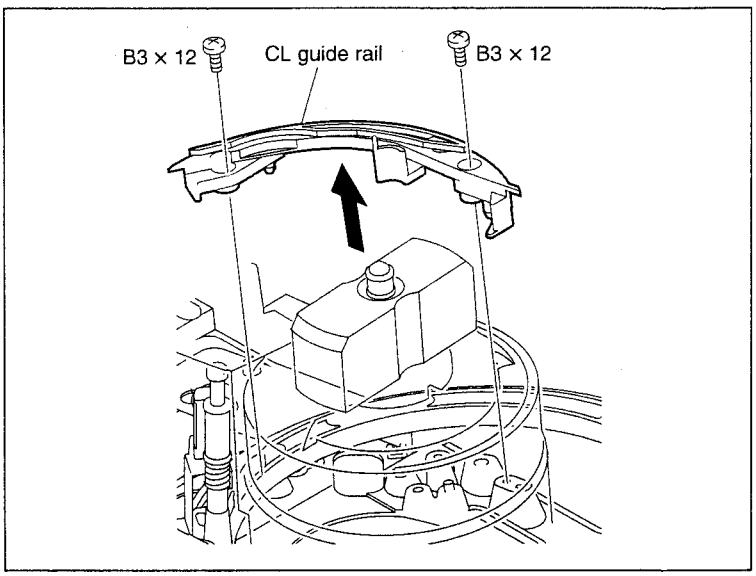
Disconnect the Flexible Board and the Harness

5. Removing the CL Guide Rail

Remove the two screws to remove the CL guide rail.

6. Removing the Pinch Press Assembly

Remove the pinch press assembly.
(Refer to steps 1 and 2 in Section 3-10.)



Removing the CL Guide Rail

7. Removing the S Plate Assembly

(1) Disconnect the harness (full erase head) from the connector CN3 of the CT-205 board.
(2) Disconnect the harnesses from the connectors of the full erase head board and tape end sensor board.
(3) Disconnect the harness (tape end sensor) from the sensor holder.
(4) Remove the screw to remove the S plate assembly.

Note

As the edge of tape cleaner is sharp, use great care to avoid a hand cut.

8. Removing the S Tension Regulator Assembly

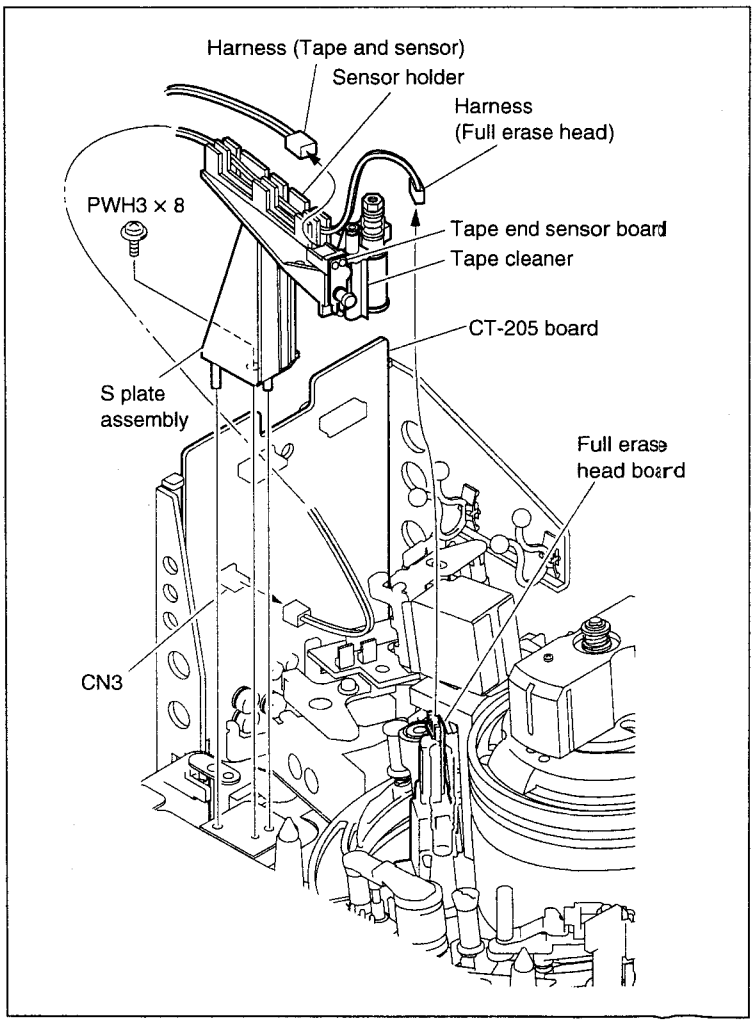
Remove the S tension regulator.
(Refer to step 1 in Section 3-21.)

9. Removing the T Drawer Assembly

Remove the T Drawer Assembly.
(Refer to steps 1 and 2 in Section 3-23.)

10. Removing the Gear Box Assembly

Remove the gearbox assembly.
(Refer to steps 1 to 3 in Section 3-19.)



Remove the S Plate Assembly

11. Removing the Ring Roller

Remove the screw, then remove the ring roller (B).

Note

Be careful not to touch the drum (especially the rotary heads).

12. Removing the Threading Ring Assembly

Remove the threading ring assembly from the chassis, while pressing the T tension arm in the arrow direction.

Note

Be careful not to damage the drum (especially the rotary heads and the tape running surface of the upper drum) and the capstan motor shaft.

Installation

13. Cleaning

Clean the inside of a new threading ring assembly with a cleaning cloth moistened with cleaning fluid.

14. Installing the Threading Ring Assembly

Press the T tension arm in the arrow direction, and install the threading ring assembly while attempting to fit it to the grooves of the ring rollers (A) and (C).

15. Installing the Ring Roller

(1) Pass the ring roller (B) through the roller shaft while holding the threading ring assembly so that it does not come off from the grooves of the ring rollers (A) and (C). Then tighten the screw.

(2) Check that the threading ring assembly does not come off from the three ring rollers. And check that the roller of the T tension regulator assembly does not come off from the side of the threading ring.

16. Installing the Gear Box Assembly

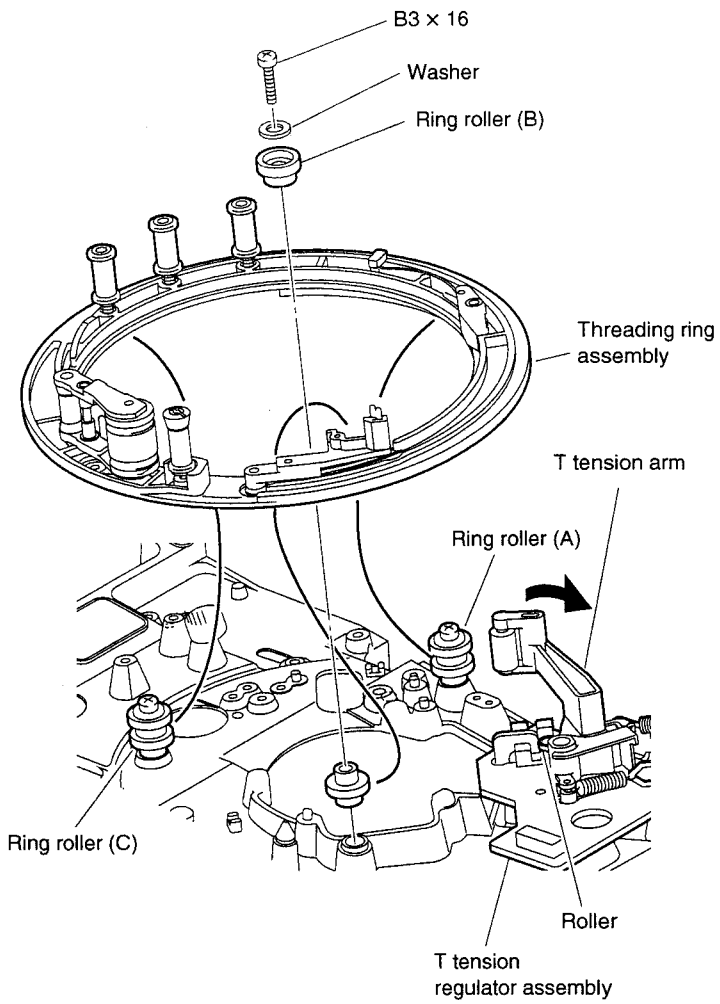
Install the gear box assembly.

Refer to steps 4 to 6 in Section 3-19.

17. Confirming the Threading Ring Operation

Turn the M gear of the gear box assembly manually and confirm that the threading ring and the three ring rollers rotate smoothly while repeating the threading and unthreading.

* Omits the illustration of parts around the threading ring (drum etc.).



Remove/Install the Threading Ring Assembly

18. Installing the S Plate Assembly

(1) Insert the pins of the S plate assembly into the holes of the chassis and tighten the screw while drawing the assembly clockwise.

Note

As the edge of tape cleaner is sharp, use great care to avoid a hand cut.

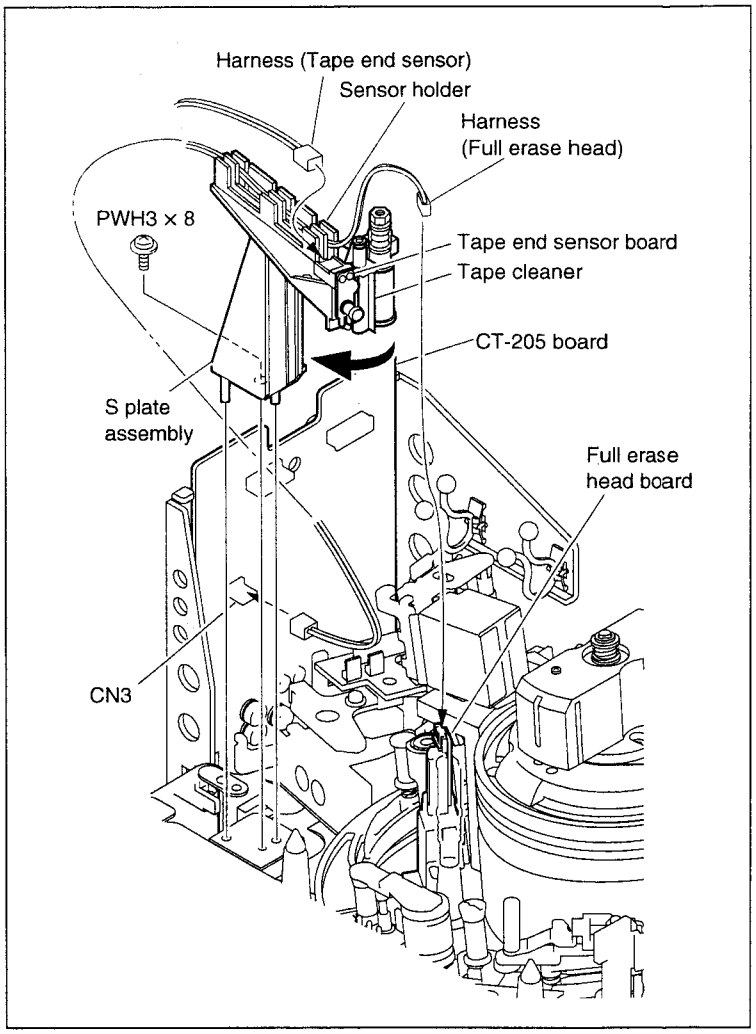
(2) Connect the harness (full erase head) to the connector CN3 of the CT-205 board.

(3) Connect the harness (full erase head) to the connector of the full erase head board.

Note

Fasten the harness (full erase head) by the harness clamper after installing the W cleaner assembly.

(4) Connect the harness (tape end sensor) to the connector of the tape end sensor board and fasten it in the sensor holder.



Install the S Plate Assembly

19. Installing the Pinch Press Assembly

Install the pinch press assembly.
(Refer to steps 3 and 4 in Section 3-10.)

20. Putting the Unit into the Unthreading End Mode

21. Installing the S Tension Regulator Assembly

Install the S tension regulator assembly.
(Refer to step 2 in Section 3-21.)

22. Installing the T Drawer Assembly

Install the T drawer assembly.
(Refer to step 3 in Section 3-23.)

23. Confirming the T Drawer Assembly Operation

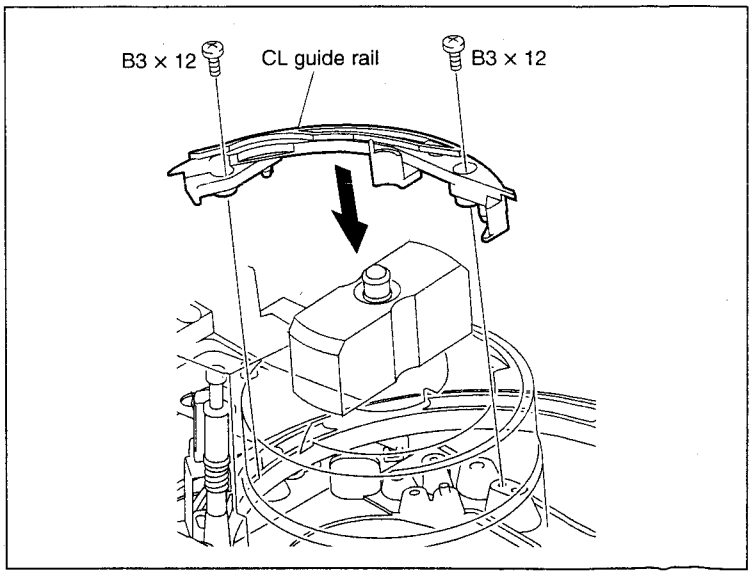
Confirm the T drawer assembly operation.
(Refer to step 6 in Section 3-23.)

24. Installing the CL Guide Rail

Install the CL guide rail with two screws.

25. Confirming the CL Arm Assembly Operation

Confirm the CL arm assembly operation.
(Refer to step 3 in Section 3-6.)



Install the CL Guide Rail

26. Installing the W Cleaner Assembly

Install the W cleaner assembly.
(Refer to steps 4 to 6 in Section 3-5.)

27. Installing the PA Guard

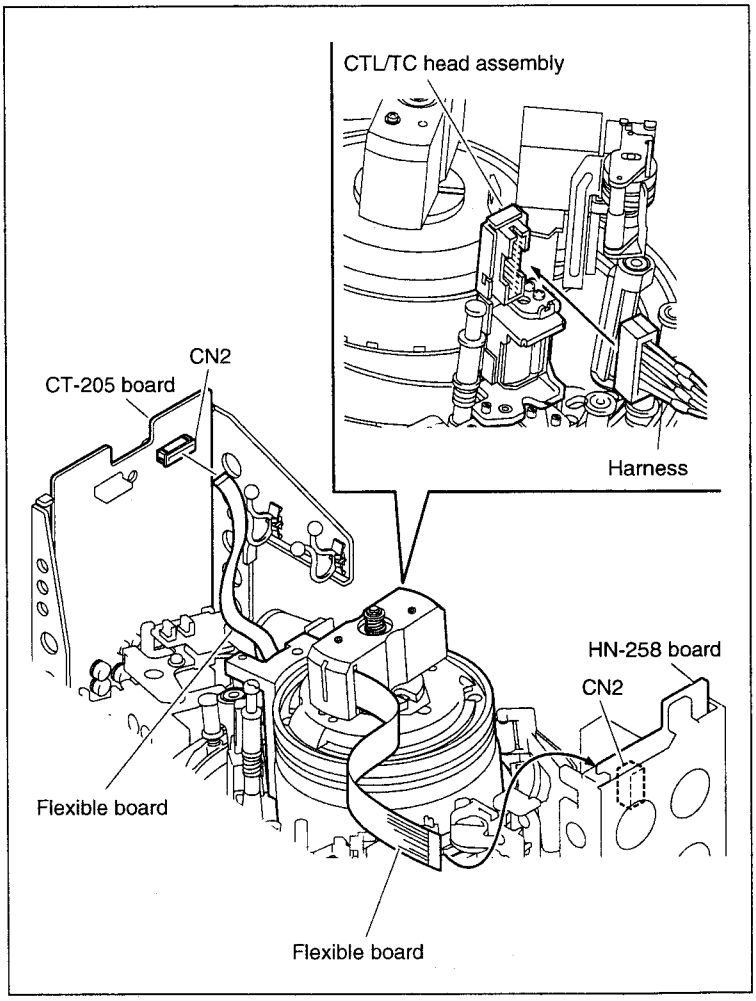
Install the PA guard.
(Refer to step 5 in Section 3-15.)

28. Connecting the Flexible Board

(1) Connect the flexible board to the connector CN2 of the HN-258 board and lock it.
(2) Connect the flexible board to the connector CN2 of the CT-205 board and lock it.

29. Connecting the Harness

Connect the harness to the connector of the CTL/TC head board.



Connect the Flexible Board and the Harness

Adjustment after Replacement

30. Confirming the Cleaning Solenoid Operation

(CH05: Pinch Roller and Cleaning Roller Solenoid Check)
Refer to Section 5-4-13.

31. Confirming the Pinch Press Clearance

Refer to step 5 in Section 3-10.

32. Confirming the Tape Running

Refer to Section 4-3.

3-21. S Tension Regulator Assembly Replacement

Outline

Replacement

1. Removing the S Tension Regulator Assembly
2. Installing the S Tension Regulator Assembly

Adjustment after Replacement

3. Performing the Servo Adjustment (All Motors, Tension Sensors Adj) (Refer to Section 5-9-5.)
4. Adjusting the Tape Running (Refer to Section 4-3.)

Note

The S tension regulator assembly comprises of precision components and is adjusted strictly. When removing/installing, use extreme care to turn only screws specified.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

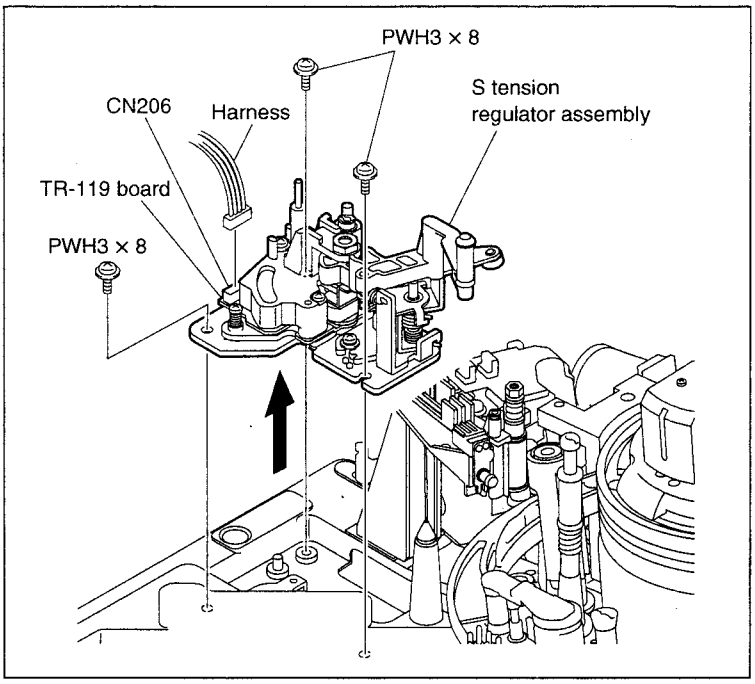
Preparation

1. Set the unit into the unthreading end mode. (Refer to step 2 in Section 3-1-3.)
2. Turn the power off and remove the power cord.
3. Remove the top panel. (Refer to Section 1-1.)
4. Remove the plate MD. (Refer to Section 1-2.)
5. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the S Tension Regulator Assembly

(1) Disconnect the harness from the connector CN206 of the TR-119 board.
(2) Remove the three screws to remove the S tension regulator assembly.

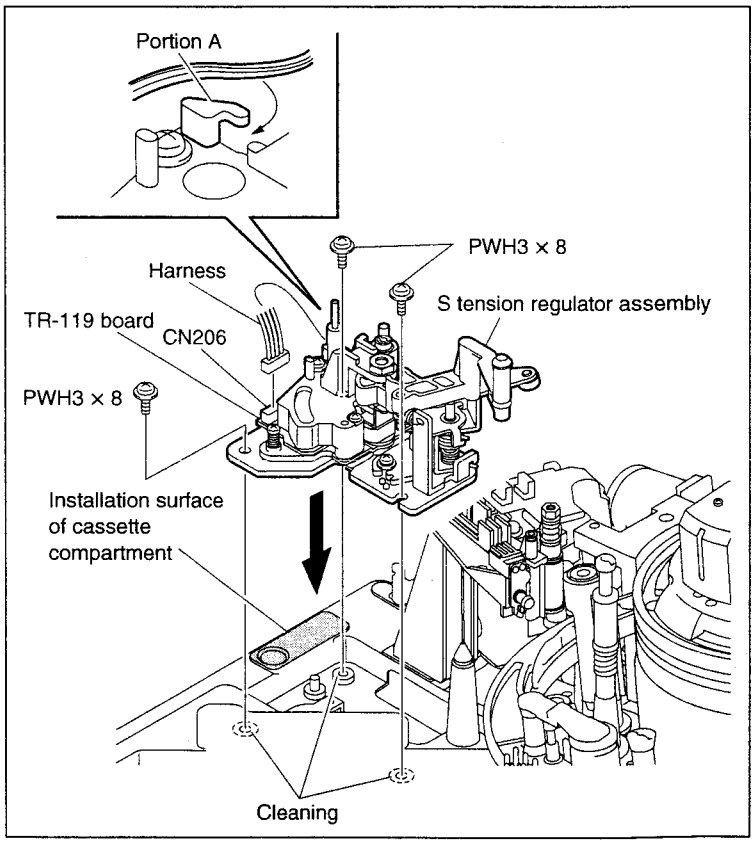


Remove the S Tension Regulator Assembly

Installation

2. Installing the S Tension Regulator Assembly

(1) Clean the mounting surfaces between the S tension regulator assembly and the MD base assembly (three contact surfaces).
(2) Install the S tension regulator assembly in the MD base assembly and fix it with the three screws.
(3) Connect the harness to the connector CN206 of the TR-119 board.
(4) Hook the harness on the A portion of the S tension regulator.
(5) Check that the harness is not on the cassette compartment mounting surface (shaded portion in the figure).



Installing the S Tension Regulator Assembly

Adjustment after Replacement

3. Performing the Servo Adjustment

Refer to Section 5-9-5.
(All Motors, Tension Sensors Adj)

4. Adjusting the Tape Running

Refer to Section 4-3.

3-22. T Tension Regulator Assembly Replacement

Outline

Replacement

1. Removing the T Tension Regulator Assembly
2. Installing the T Tension Regulator Assembly
3. Confirming the T Tension Regulator Assembly Operation

Adjustment after Replacement

4. Performing the Servo Adjustment
   (All Motor, Tension Sensors Adj) (Refer to Section 5-9-5.)
5. Performing the Tape Running (Refer to Section 4-3.)

Note

The T tension regulator assembly comprises of precision components and is adjusted strictly. When removing/installing, use extreme care to turn only screws specified.

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

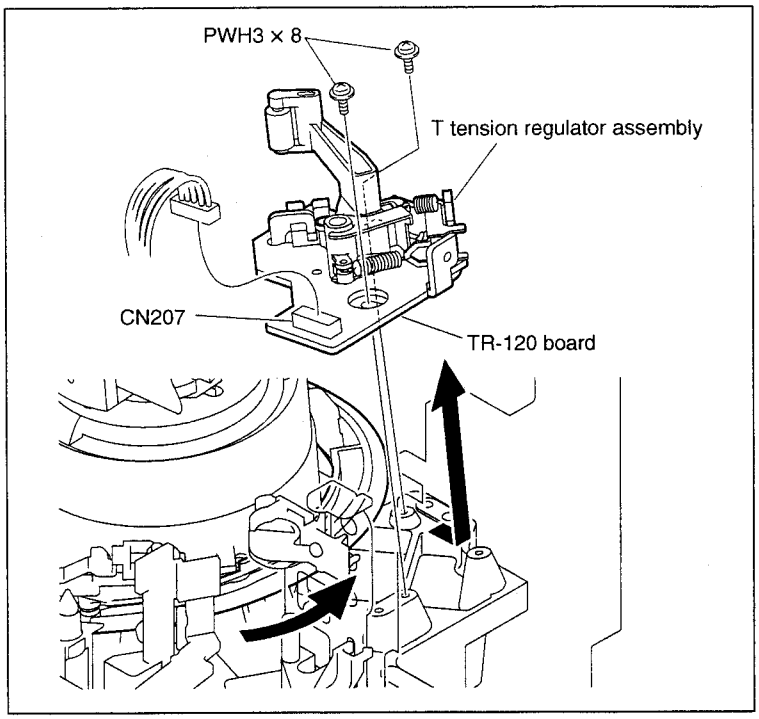
Preparation

1. Set the unit into the unthreading end mode. (Refer to step 2 in Section 3-1-3.)
2. Turn the power off and remove the power cord.
3. Remove the top panel. (Refer to Section 1-1.)
4. Remove the plate MD. (Refer to Section 1-2.)
5. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the T Tension Regulator Assembly

(1) Disconnect the harness from the connector CN207 of the TR-120 board.
(2) Turn the M gear of the gearbox assembly to move the threading ring assembly about 1 cm in the threading direction from the unthreading end status.
(3) Remove the two screws and remove the T tension regulator assembly in the arrow direction.

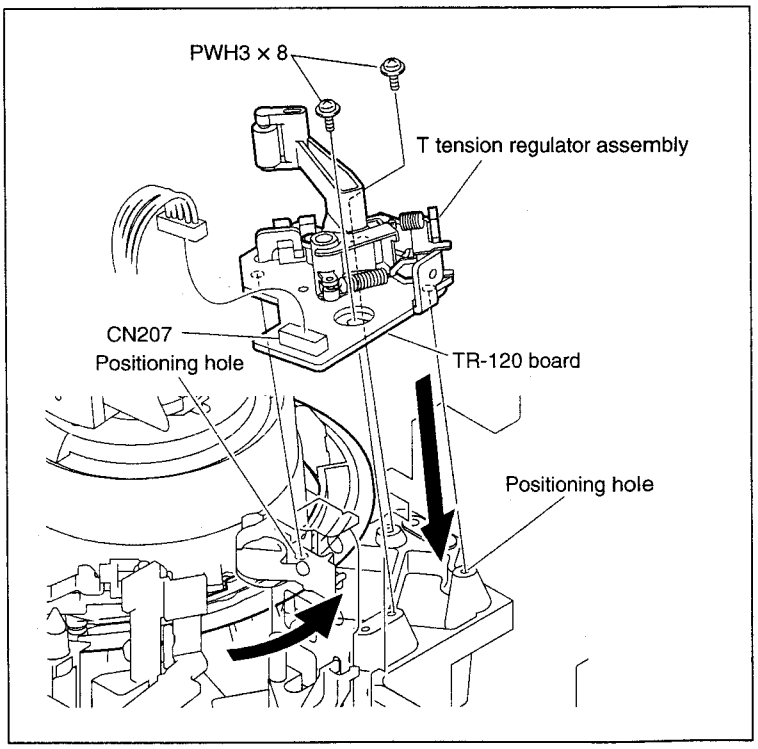


Remove the T Tension Regulator Assembly

Installation

2. Installing the T Tension Regulator Assembly

(1) Align the two projections of the T tension regulator assembly with the positioning holes of the MD base assembly and install it.
(2) Tighten the two screws to fix the T tension regulator assembly.
(3) Connect the harness to the connector CN207 of the TR-120 board.

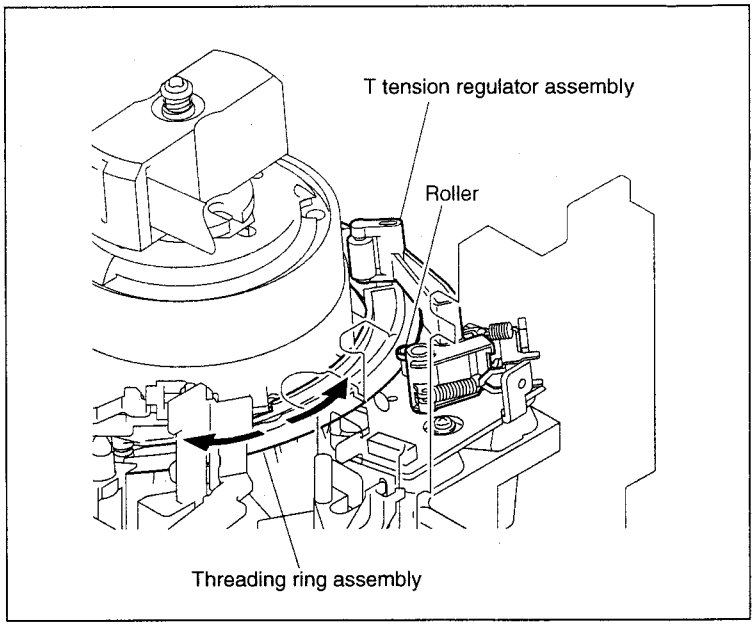


Install the T Tension Regulator Assembly

3. Confirming the T Tension Regulator Assembly Operation

(1) Turn the M gear of the gear box assembly to let the threading ring thread and unthread.

(2) Confirm that the roller of the T tension regulator assembly does not come off from the threading ring and operates normally.



T Tension Regulator Assembly Operation

Adjustment after Replacement

4. Performing the Servo Adjustment

Refer to Section 5-9-5.
(All Motors, Tension Sensors Adj)

5. Performing the Tape Running

Refer to Section 4-3.

3-23. T Drawer Assembly Replacement and Adjustment

3-23-1. T Drawer Assembly Replacement

Outline

Replacement

1. Removing the ME Wire
2. Removing the T Drawer Assembly
3. Installing the T Drawer Assembly
4. Installing the ME Wire
5. Confirming the ME Wire Operation
6. Confirming the T Drawer Assembly Operation

Adjustment after Replacement

7. Adjusting the Slant Guide Slantness (Refer to Section 3-23-2.)

Note

Prepare a new stop washer when replacing the T drawer assembly.

- Stop washer (d = 2.3 mm): 3-669-596-00

Tools

- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Slide calipers (or an equivalent)

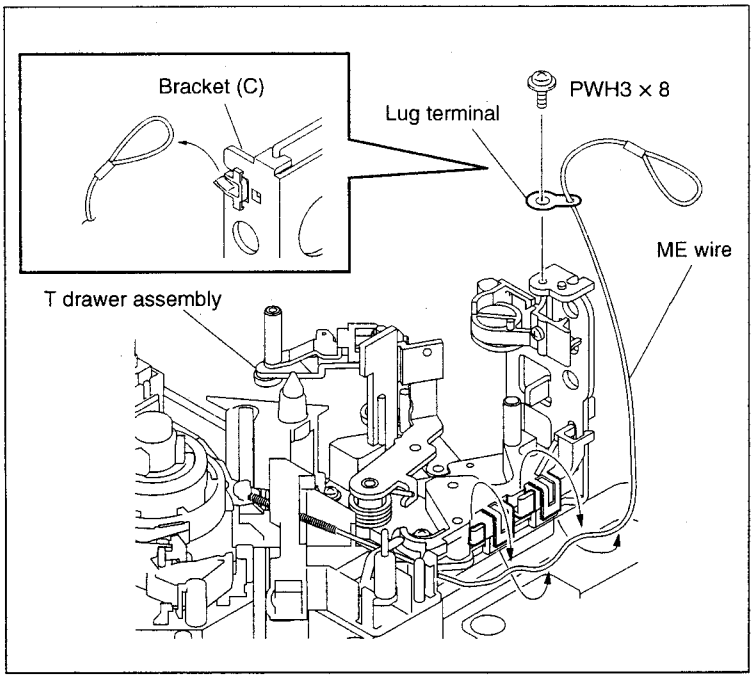
Preparation

1. Set the unit into the unthreading end mode. (Refer to step 2 in Section 3-1-3.)
2. Turn the power off and remove the power cord.
3. Remove the top panel. (Refer to Section 1-1.)
4. Remove the plate MD. (Refer to Section 1-2.)
5. Remove the cassette compartment. (Refer to Section 1-2.)

Removal

1. Removing the ME Wire

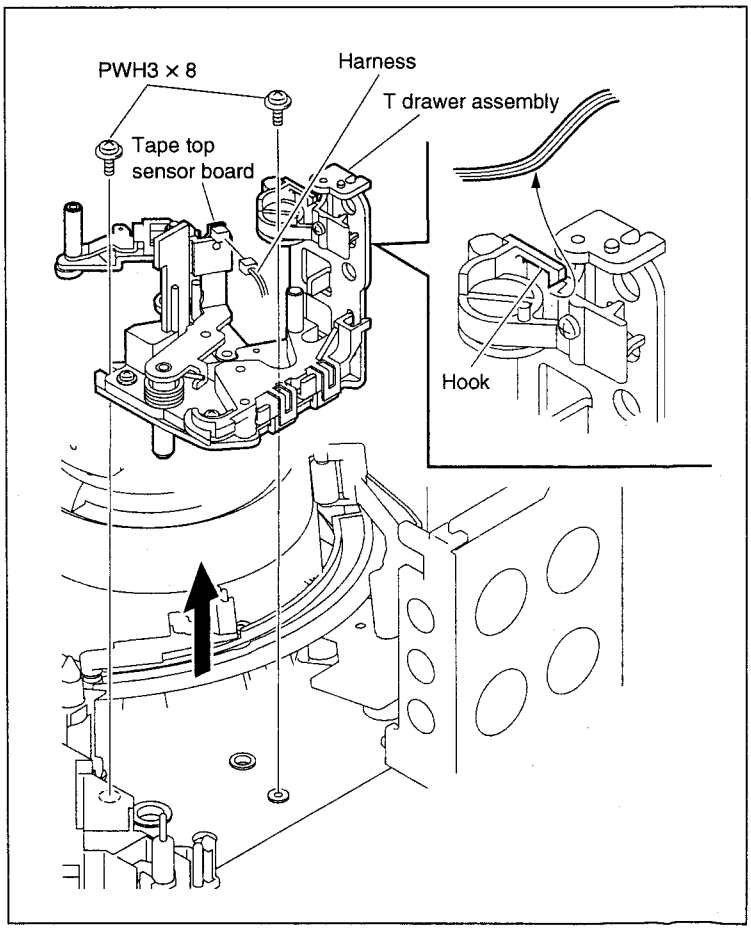
(1) Release the tip of the ME wire from the wire holder of the bracket (C).
(2) Remove the screw securing the lug terminal of the ME wire.
(3) Remove the ME wire from the T drawer assembly by pulling the wire in the arrow directions.



Removing the ME Wire

2. Removing the T Drawer Assembly

(1) Remove the harness from the connector of the tape top sensor board.
(2) Release the harness from the hook of the T drawer assembly.
(3) Remove the two screws to remove the T drawer assembly.

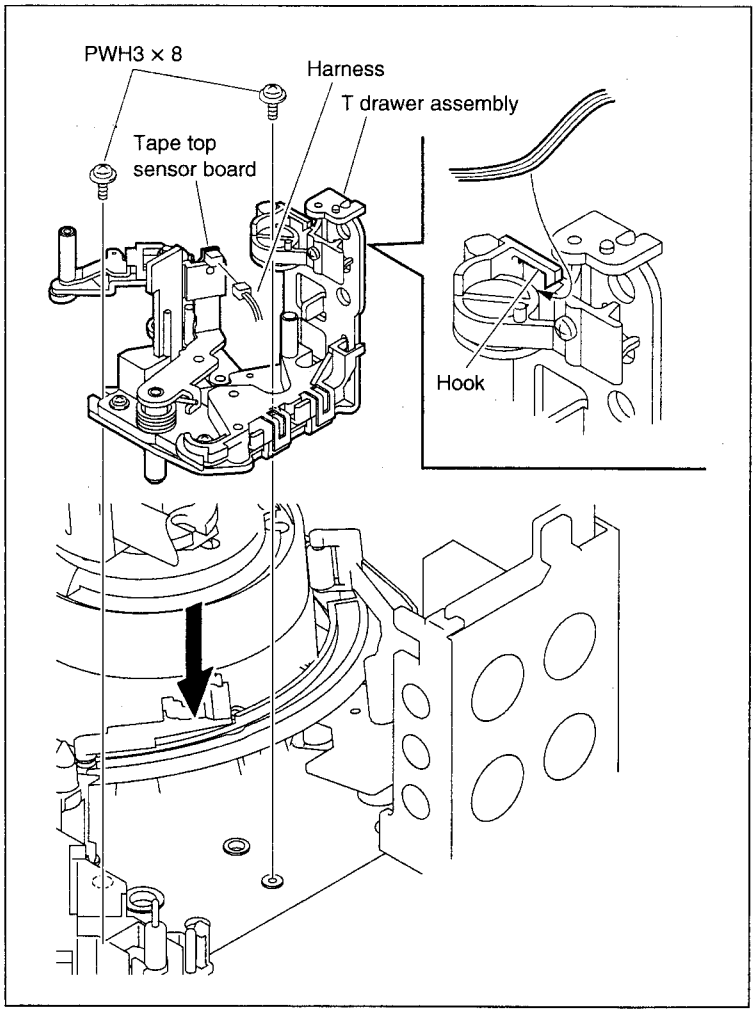


Removing the T Drawer Assembly

Installation

3. Installing the T Drawer Assembly

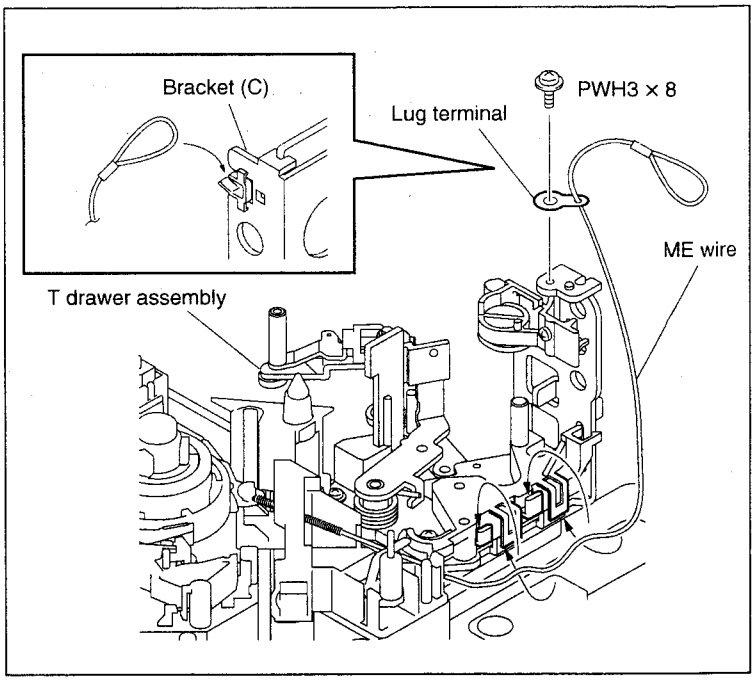
(1) Clean the mounting surfaces between the T drawer assembly and the MD base assembly.
(2) Install the T drawer assembly in the MD base assembly and fix it with the two screws.
(3) Connect the harness to the connector of the tape top sensor board.
(4) Hang the harness on the hook of the T drawer assembly to fasten.



Installing the T Drawer Assembly

4. Installing the ME Wire

Install the ME wire in the T drawer assembly as shown in the figure and fix the lug terminal with the screw to fasten the wire.



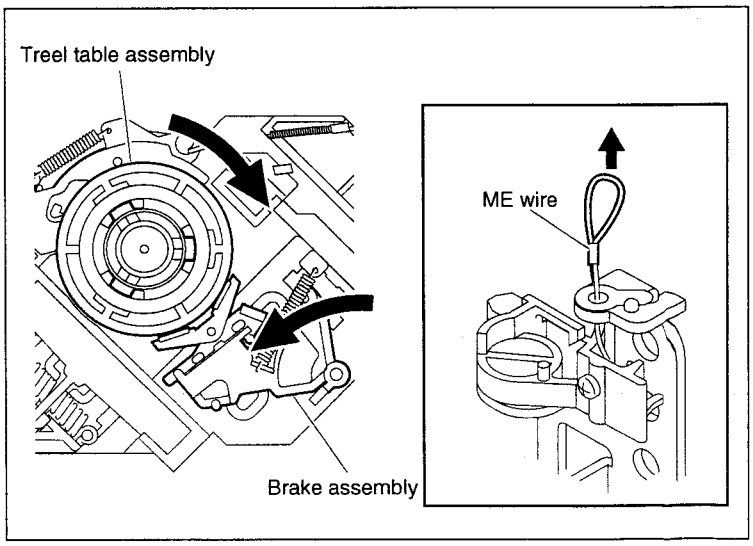
Installing the ME Wire

5. Confirming the ME Wire Operation

(1) Confirm that the T-side reel table rotates when lifting the hook of the tip of the ME wire upwardly.
Perform the check each at the L cassette position and S cassette position. (As for the method of shifting the reel table, refer to Section 3-1-4.)

(2) Turn the T reel table while pressing the reel brake assembly in the arrow direction, and confirm that the T reel table rotates smoothly.

(3) After confirmation, hang the tip of the ME wire on the wire holder of the bracket (C) to fasten.



Confirming the ME Wire Operation

6. Confirming the T Drawer Assembly Operation

(1) When the threading ring rotates toward the threading end direction, check that the portion A of the threading ring pushes the roller of the T drawer assembly and the drawer guard certainly. And at this time, check that the lower surface of the roller does not come in contact with the surface B of the threading ring (shaded portion in the figure). (Specification.1)

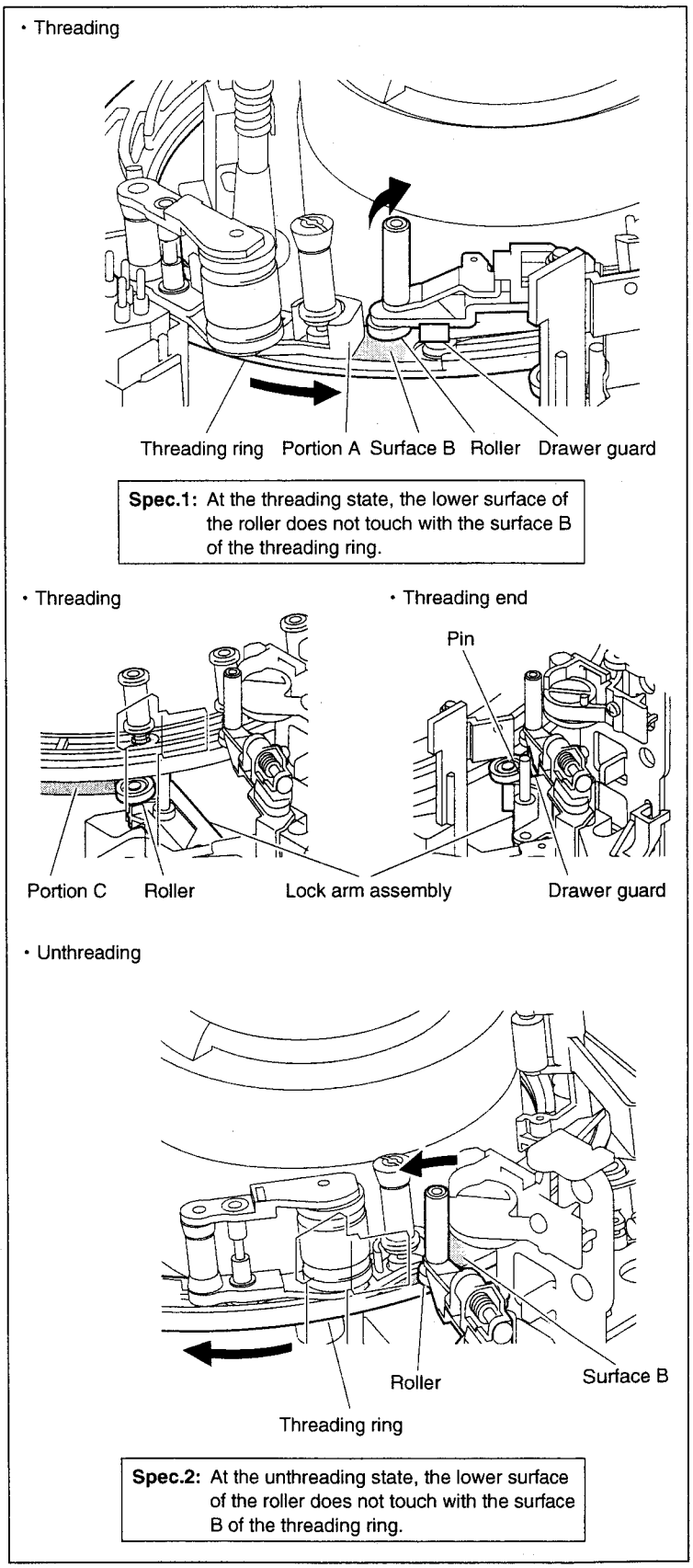
If the specification 1 is not satisfied, adjust the height and the vertical play of the T drawer arm. (Refer to T drawer arm height adjustment.)

(2) When threading, check that the portion C of the threading ring pushes certainly the roller of the lock arm assembly, and also check that the pin of the lock arm assembly pushes certainly the drawer guard.

(3) When the threading ring rotates toward the unthreading end direction, check that the roller of the T drawer assembly moves inside to the threading ring smoothly. And at this time, check that the lower surface of the roller does not come in contact with the surface B of the threading ring (shaded portion in the figure). (Specification 2)

If the specification 2 is not satisfied, adjust the height and the vertical play of the T drawer arm. (Refer to T drawer arm height adjustment.)

(4) When unthreading, check that the lock arm assembly of the T drawer assembly returns smoothly.


• Threading
Threading ring
Portion A
Surface B
Roller
Drawer guard
Spec.1: At the threading state, the lower surface of the roller does not touch with the surface B of the threading ring.
• Threading
• Threading end
Pin
Portion C
Roller
Lock arm assembly
Drawer guard
• Unthreading
Roller
Surface B
Threading ring
Spec.2: At the unthreading state, the lower surface of the roller does not touch with the surface B of the threading ring.

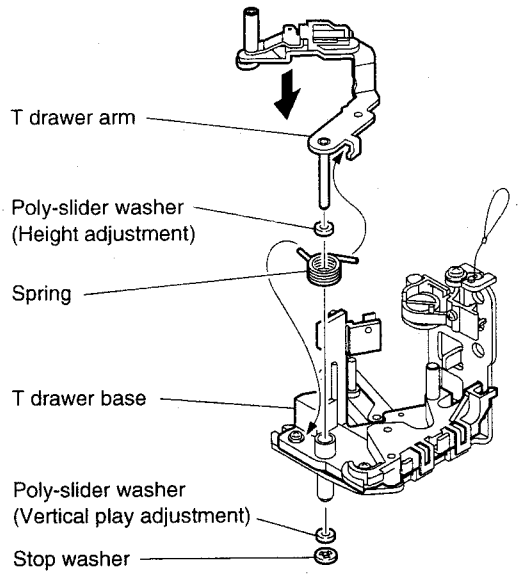
Confirm the T Drawer Assembly Operation

T Drawer Arm Height Adjustment

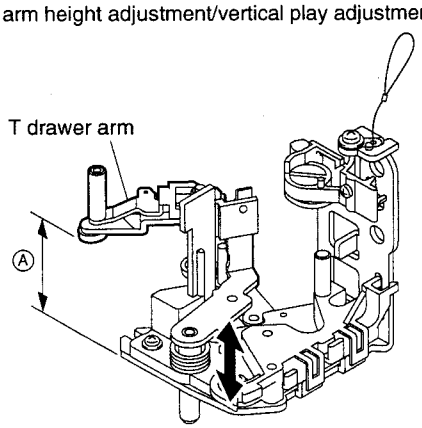
(1) Remove the Tdrawer assembly.
(Refer to steps 1 and 2.)
(2) Remove the stop washer and poly-slider washer, then remove the T drawer arm from the T drawer base.
(3) Remove the spring and poly-slider washer.
(4) Adjust the number of poly-slider washers (height adjustment).
(5) Install the T drawer arm in the T drawer base and check that the spec 3 is satisfied.
(6) Pass the poly-slider washer through the shaft, then fix the T drawer arm by a new stop washer.
(7) Move the T drawer arm in the vertical direction. At this time, check that the vertical play satisfies the specification 4.

If the specification 4 is not satisfied, repeat steps ① to ③ until it is satisfied. (Vertical play adjustment)

① Remove the stop washer
② Adjust the number of the poly-slider washers (vertical play adjustment) at the lower of the T drawer base.
③ Fix the T drawer arm by the stop washer and check again that the specification 4 is satisfied.



* T drawer arm height adjustment/vertical play adjustment



Spec.3: (height)
Ⓐ = 36.3 to 36.7 mm
Spec.4: (vertical play)
0.2 mm or less

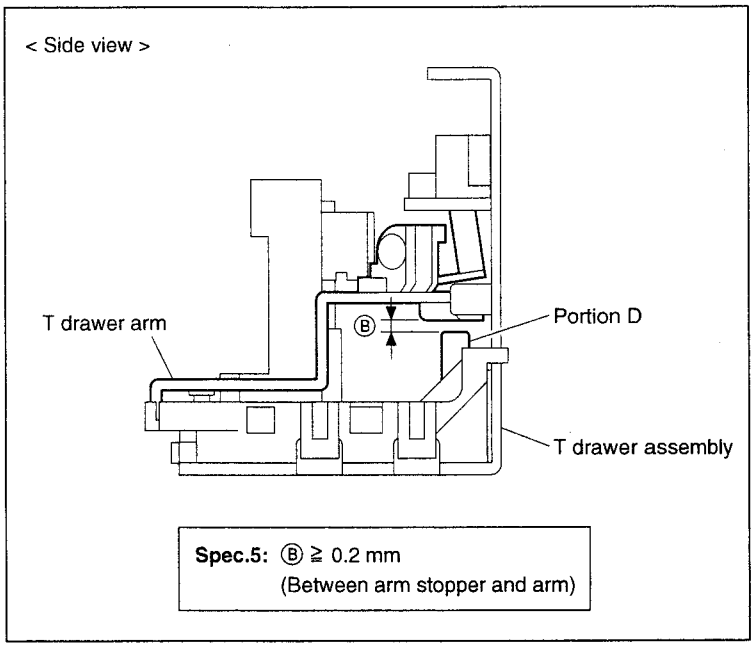
* When the specification 3 and 4 are not satisfied.

• Poly-slider washer for adjustment

Diameter	Thickness	Part No.
3.0 mm	0.13 mm	3-701-439-01
	0.25 mm	3-701-439-11
	0.5 mm	3-701-439-21

T Drawer Arm Height Adjustment

(8) Confirm that the height of the T drawer arm satisfies the specification 5 with the T drawer arm turned clockwise by finger.
If specification 5 is not satisfied, perform the procedures (4) and later again.



T Drawer Arm Height Adjustment

Adjustment after Replacement

7. Adjusting the Slant Guide Slantness

Refer to Section 3-23-2.

3-23-2. Slant Guide Slantness Adjustment

Note

- Be sure to adjust the slant guide slantness when the T drawer assembly is replaced.
- Tape running operation
  The tape operation in the adjustment procedure is performed using the PC.
  Refer to Section 1-11 for details of the operation.

Tools

- Cassette reference plate (L)(MW-088): J-6320-880-A
- Tension regulator slantness check tool (BW-080): J-6190-800-A
- Thickness gauge: 9-911-053-00
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Locking compound: 7-432-114-11
- DTF-2 cassette (L cassette)

Check

1. Installing the Cassette Reference Plate (L)

Place the cassette reference plate (L) positioning as shown in the figure, then place it on two cassette supports.

2. Checking the Slant Guide Slantness

(1) Press the tension regulator slantness check tool against the slant guide from the directions indicated by the arrow A and B.
(2) Check that the clearance between the slant guide and tool satisfies specifications 1 and 2.

If the specifications 1 and 2 are not satisfied, repeat steps ①, ② and ③ until they are satisfied.

① Turn the adjustment screw according to the following manner to meets specification 1.
- Turn clockwise
  ⇨ Clearance Ⓐ is narrower.
- Turn counterclockwise
  ⇨ Clearance Ⓐ is wider.

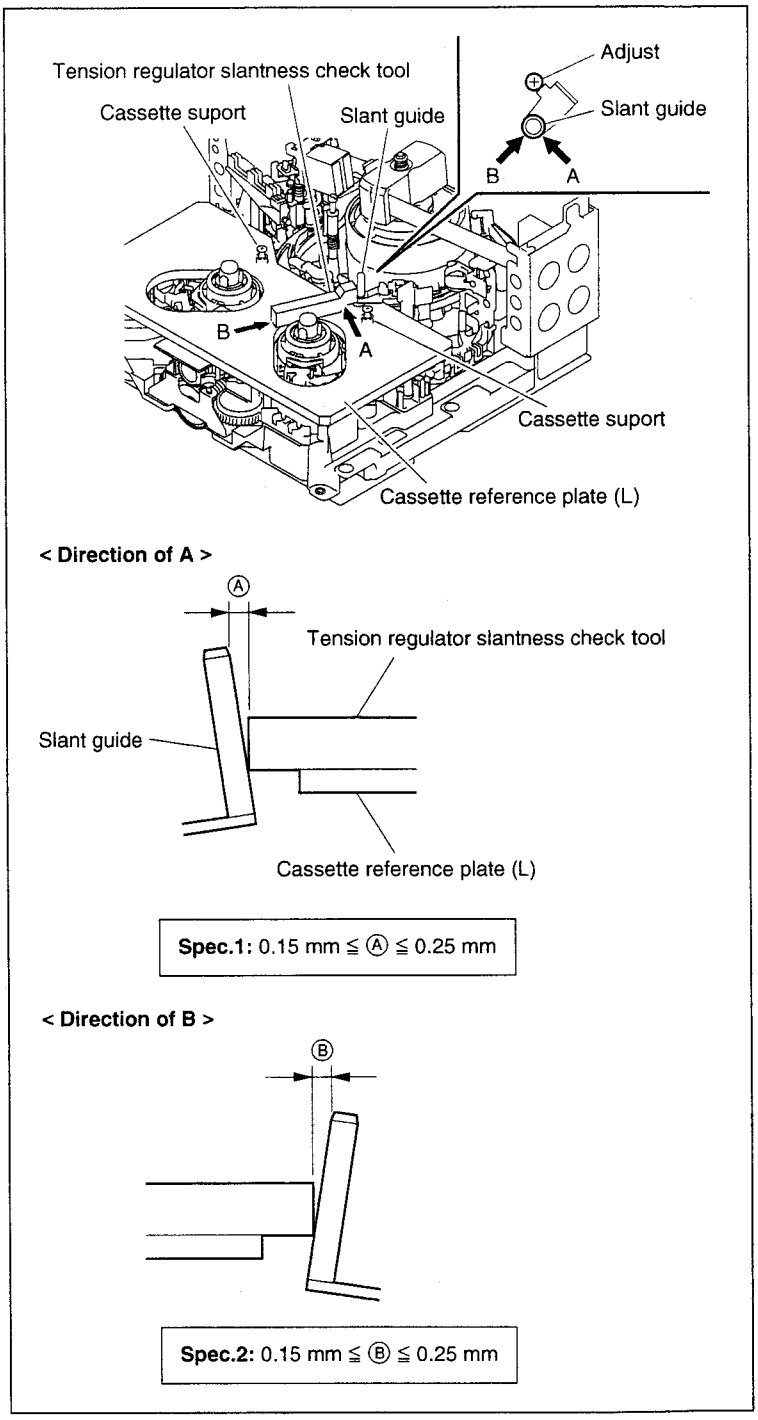
② Bend the slant guide so that both specifications 1 and 2 are satisfied.
③ Check again that the specifications 1 and 2 are satisfied after putting the unit into the threading end mode and the unthreading end mode alternately.

3. Removing the Cassette Reference Plate (L)

Remove the tension regulator slantness check tool and cassette reference plate (L).

4. Cleaning

Clean the slant guide with a cleaning piece moistened with cleaning fluid.



Slant Guide Slantness Check

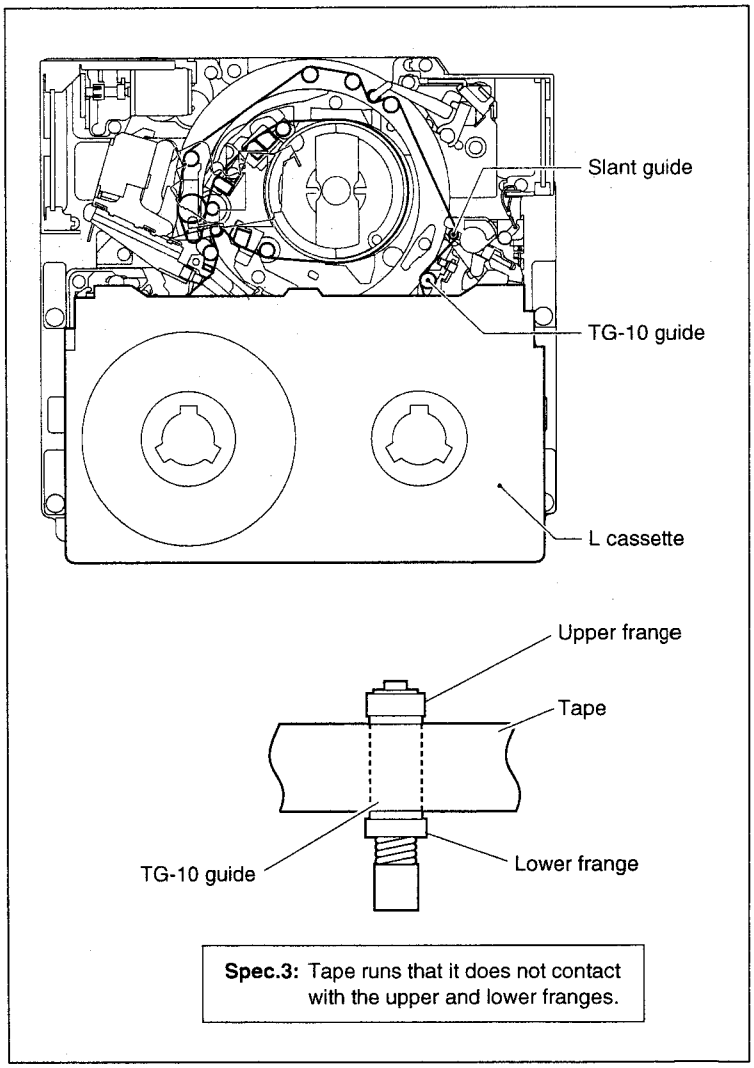
5. Setting the L Cassette

(1) Place the reel motor plate assembly in the L cassette position.
(2) Set the L cassette and put a weight on the cassette so that it does not rise up.

6. Checking the Tape Running at TG-10 Guide

(1) Put the unit into F FWD mode once. About three seconds later, put the unit into FWD mode.
(2) Check that the tape running condition satisfies specification 3 at TG-10 guide.

If the specification 3 is not satisfied, perform step 7 and later.



Tape Running Check at TG-10 Guide

Adjustment

7. Adjusting the Slant Guide Slantness

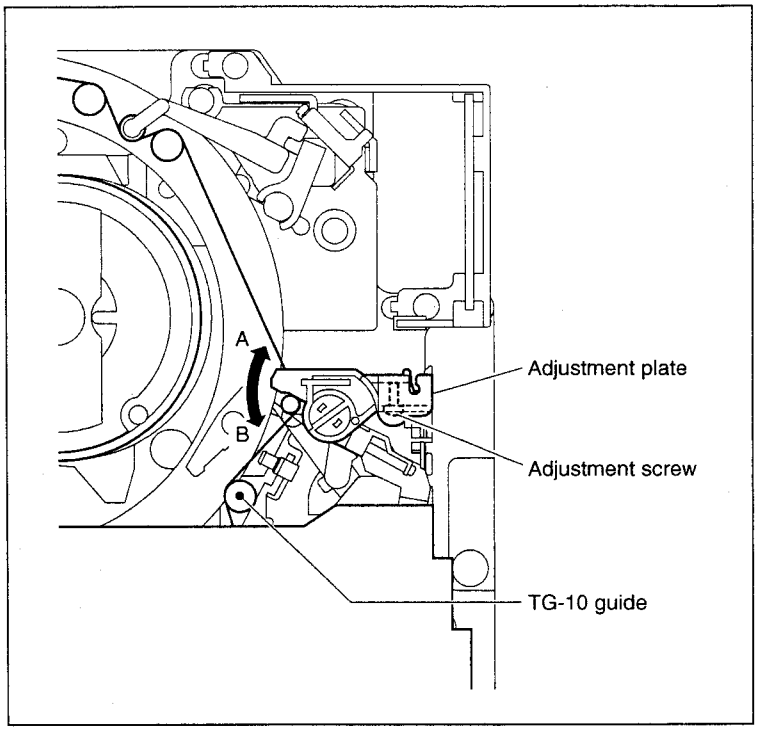
Adjust the adjustment plate position by turning the adjustment screw so that specification 3 is satisfied.

- If the tape runs in contact with the upper flange of TG-10:
  Turn the adjustment screw to clockwise direction.
- If the tape runs in contact with the lower flange of TG-10:
  Turn the adjustment screw to counterclockwise direction.

8. Rechecking the Tape Running at TG-10 Guide

(1) Put the unit into the unthreading end mode.
(2) Then put the unit into PLAY mode, and check again that the tape running condition satisfies specification 3 at TG-10 guide.

If the specification 3 is not satisfied, repeat steps 7 and 8 mentioned above.



Adjusting Slant Guide Slantness

3-24. Cassette Compartment Motor Replacement

Outline

Replacement

1. Disconnecting the Harness (CN935/CL-29 Board)
2. Removing the Warm
3. Removing the Cassette Compartment Motor
4. Removing the Motor Joint
5. Removing the Spacer and Disconnecting the Harness
6. Harness Soldering
7. Attaching the Motor Joint
8. Attaching the Spacer and Worm
9. Attaching the Cassette Compartment Motor
10. Applying the Grease
11. Connecting the Harness (CN935/CL-29 Board)

Adjustment after Replacement

12. Checking the Cassette Compartment Motor Operation (Refer to Section 5-4-13.) (CH03: Cassette Compartment Motor Check.)

Preparation

1. Turn off the power and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)
3. Remove the plate MD assembly. (Refer to Section 1-2.)
4. Remove the cassette compartment assembly. (Refer to Section 1-2.)

Tools

- L wrench (Across flat has 0.89 mm): 7-700-736-06
- Grease (SGL-601): 7-651-000-10
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01
- Calipers (or the equivalent)

Removal

1. Disconnecting the Harness

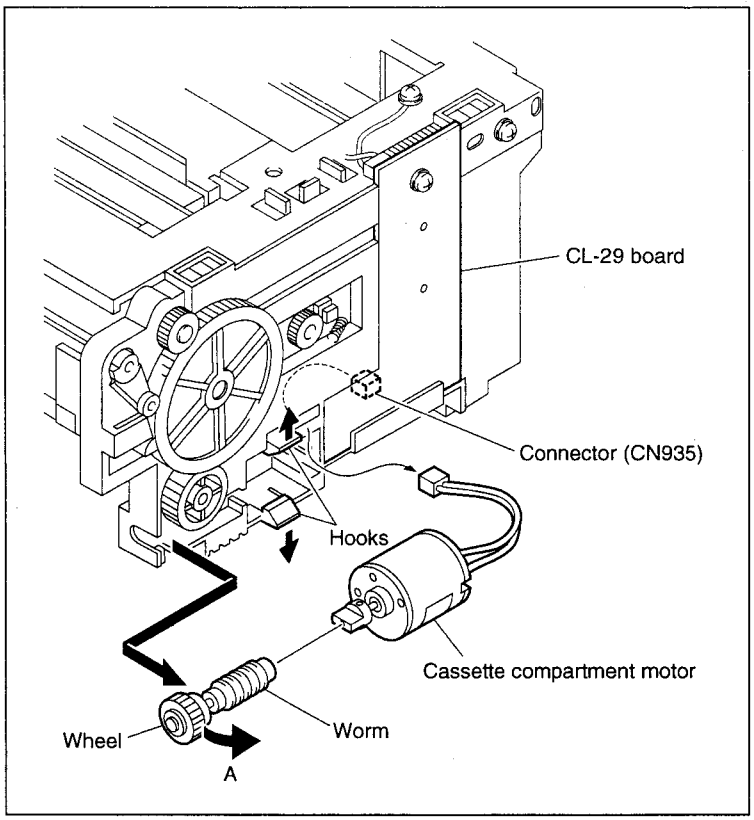
Disconnect the harness from the connector CN935 on the CL-29 board.

2. Removing the Worm

Push the wheel in the direction indicated by arrow A and take out the worm.

3. Removing the Cassette Compartment Motor

Spread the claw of the chassis and push out the cassette compartment motor from the inside of the cassette compartment.



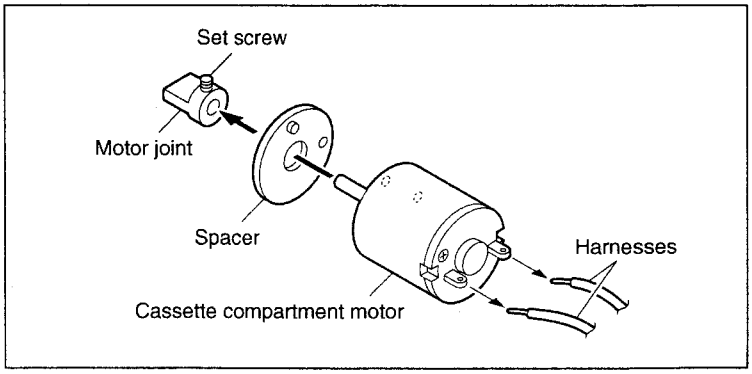
Remove the Cassette Compartment Motor (1)

4. Removing the Motor Joint

Loosen the set screw by two to three turns and remove the motor joint.

5. Removing the Spacer and Disconnecting the Harness

(1) Remove the spacer.
(2) Unsolder and disconnect the harness from the motor.



Remove the Cassette Compartment Motor (2)

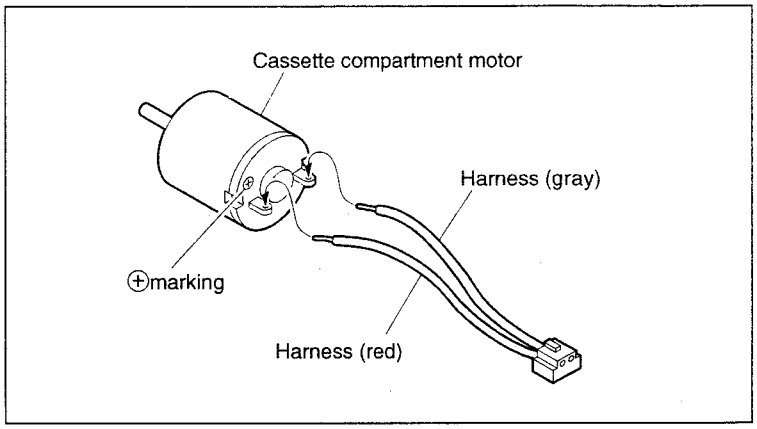
Installation

6. Harness Soldering

Solder the harness disconnected in (2) of step 5 to a new motor.

Note

Solder a red harness to the side of marking "+" of the motor.



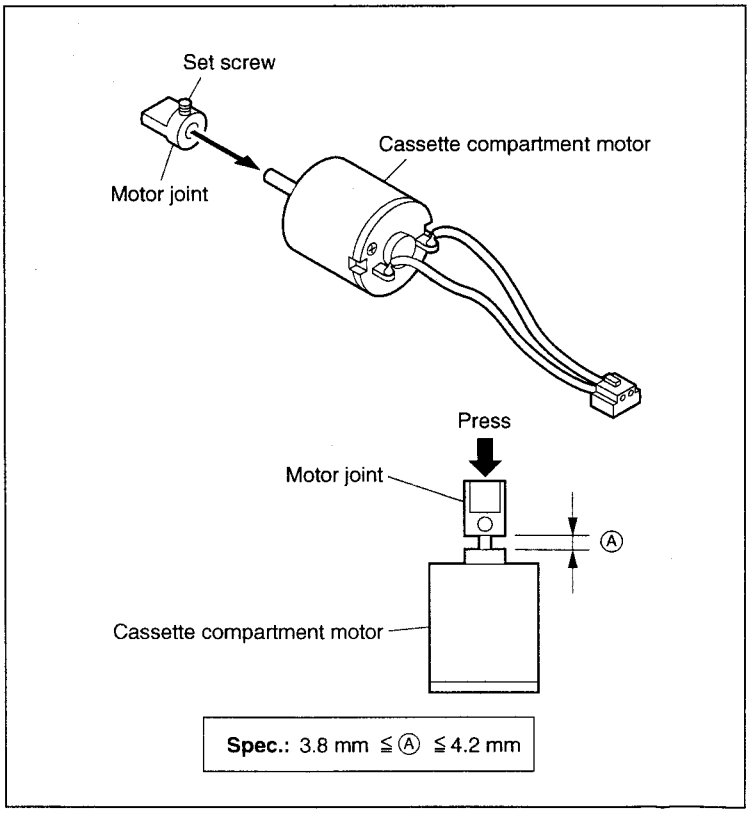
Harness Soldering

7. Attaching the Motor Joint

(1) Pass the motor joint through the shaft of the motor and temporarily tighten the set screw.

(2) Confirm that the clearance between the motor joint and motor satisfies the specification when the motor joint is pushed toward the motor, and tighten the set screw.

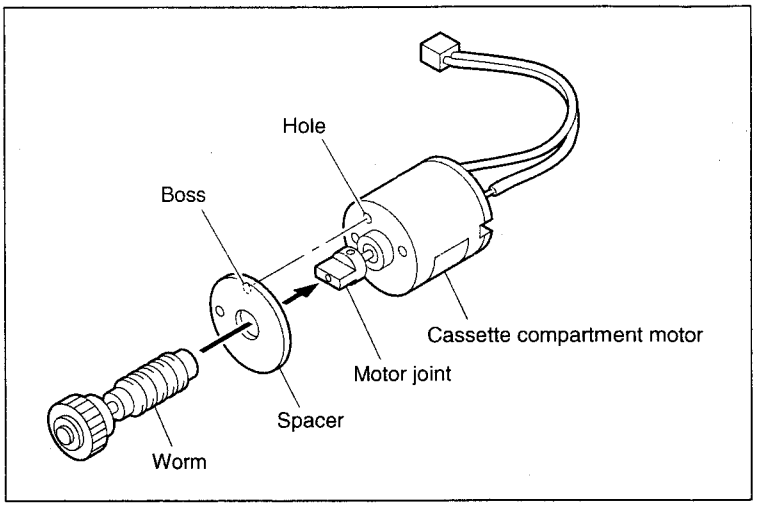
Tightening torque: 60×10^{-2} N•m
{6 kgf•cm}



Attach the Motor Joint

8. Attaching the Spacer and Worm

(1) Put the boss of the spacer in the hole of the motor.
(2) Align the with the motor joint, then insert it worm.



Attach the Spacer and Warm

9. Installing the Cassette Compartment Motor

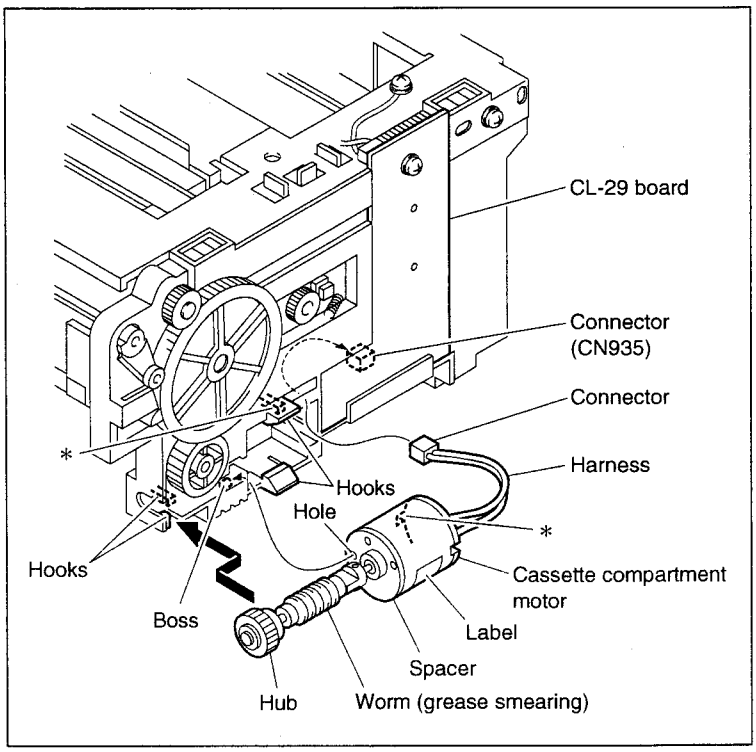
(1) Position the motor as shown in the figure and pass the harness through the hole of the chassis.
(2) Align the * marked portion of the motor with the * marked portion of the chassis and fit the motor in the two claws while inserting the hole of the spacer into the boss of the chassis. Simultaneously, fit the hub of the worm in the two claws of the chassis.
(3) Confirm that the motor has been fixed.

10. Applying the Grease

(1) Wipe the grease on the worm and clean it.
(2) Slightly apply the grease to the worm.

11. Connecting the Harness

Connect the harness of the cassette comportment motor to the connector CN935 on the CL-29 board.



Attach the Cassette Compartment Motor

Adjustment after Replacement

12. Checking the Cassette Compartment Motor Operation

Refer to Section 5-4-13.
(CH03: Cassette Compartment Motor Check.)

Note

Perform this check with the cassette compartment installed in the unit.

3-25. Fan Motor Rear Panel Replacement

Outline

Replacement

1. Disconnecting the Harness (CN601/MB-887 Board)
2. Removing the Rear Panel
3. Removing the Fan Motor
4. Installing the Fan Motor
5. Installing the Rear Panel
6. Connecting the Harness (CN601/MB-887 Board)

Note

Adjustment after the fan motor replacement is not required.

Preparation

1. Turn the power off and remove the power cord.
2. Remove the top panel. (Refer to Section 1-1.)

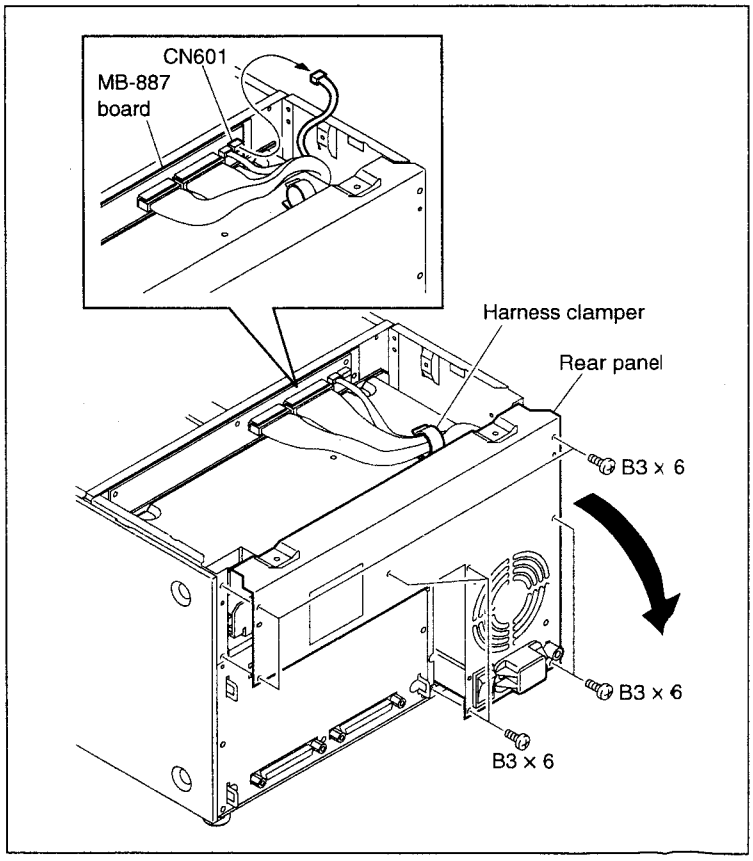
Removal

1. Disconnecting the Harness

(1) Disconnect the harness from the connector CN601 of the MB-887 board.
(2) Release the harness from the harness clamper.

2. Removing the Rear Panel

Remove the eight screws and open the rear panel in the arrow direction.



Remove the Rear Panel

3. Removing the Fan Motor

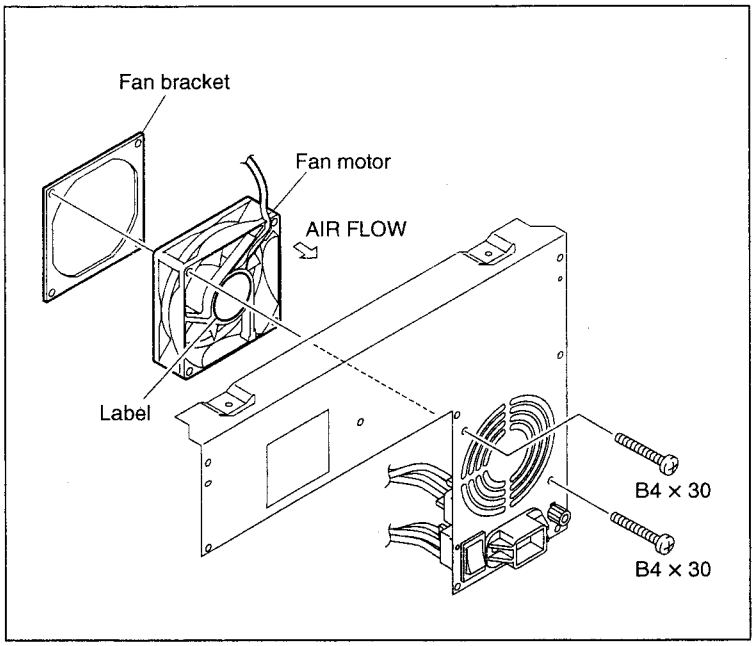
Remove the two screws, then remove the fan motor and fan bracket.

Installation

4. Installing the Fan Motor

Install a new fan motor positioning as shown in the figure, and fix it with the two screws.

Tightening torque : 1.0 N•m (10 kgf•cm)



Remove/Install the Fan Motor

5. Installing the Rear Panel

Install the rear panel and fix it with the eight screws.

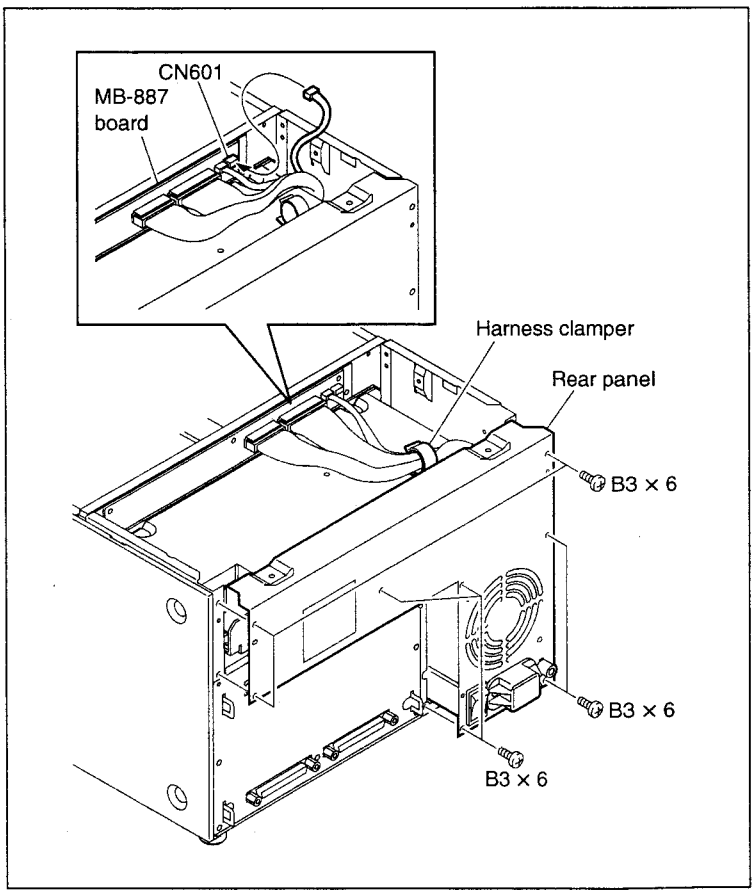
Tightening torque : 8×10^{-2} N•m (8 kgf•cm)

CAUTION

Be careful not to pinch the harness between the rear panel and the chassis.

6. Connecting the Harness

(1) Connect the harness to the connector CN601 of the MB-887 board.
(2) Fasten the harness in the harness clamper.



Install the Rear Panel

Section 4
Tape Path Alignment

4-1. Genaral Information for Tape Path Adjustment

4-1-1. Notes

1. Cassette Compartment

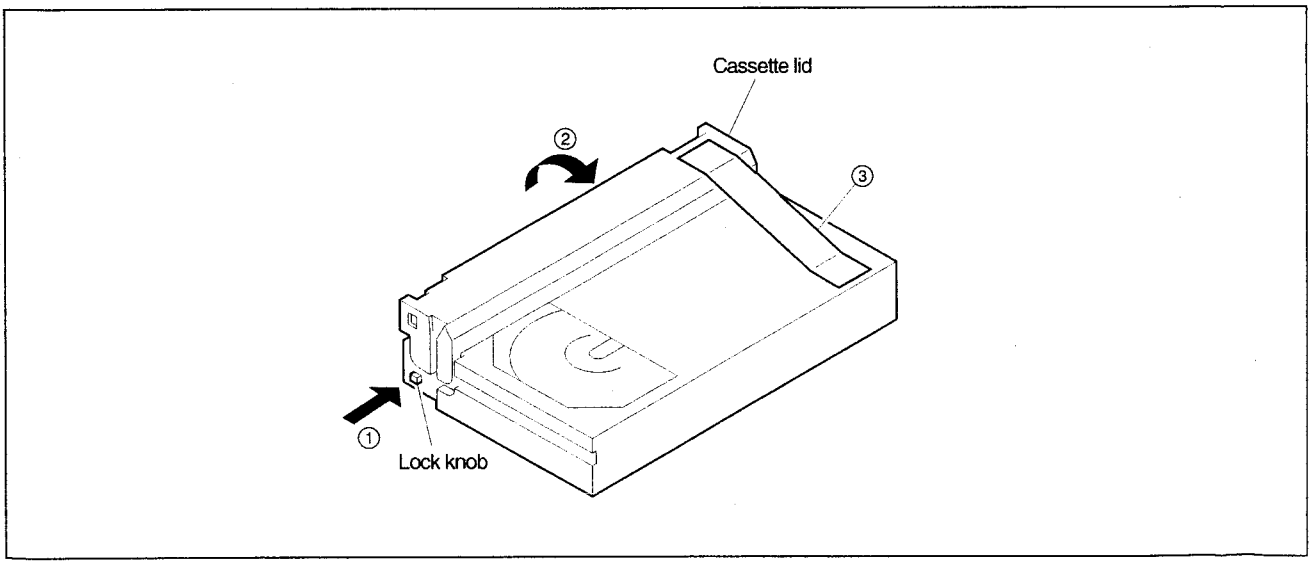
- The tape path adjustment should be performed under the state that the cassette compertment is removed. If not, some checks and adjustments may be impossible.
- When the tape path adjustment is performed with the cassette compartment removed, the tape protection circuit is activated and the "ERROR" message may be displayed. In this case, turn the power off, then turn it on again.

2. Cassette

The tape path adjustment is performed after the cassette compertment removal. Then, it is necessary to make a modification to the cassette and alignment tape that are used for tape path adjustment as follows.

Cassette tape with holding lid
Open the cassette lid ② while pushing the lock knob ① and fix the cassette lid using an adhesive tape ③.

When setting the cassette or the alignment tape on the VTR, put it to the cassette supports on the mechanical deck. And then, put a weight on the cassette so that it does not rise up. The weight about 1000 g is suitable.



3. Tape Running Operation

To make an adjustment mentioned in Section 4-3 afterward, set the unit to the line mode. Setting to the line mode enables a tape to be operated by the switch on the DSP-90 board.
For details on the line mode, refer to Section 1-11.

4-1-2. Preparation

(1) Turn the power off.
(2) Remove the top panel and front panel. (Refer to Section 1-1.)
(3) Remove the plate MD. (Refer to Section 1-2.)
(4) Remove the cassette compartment. (Refer to Section 1-2.)
(5) Remove the W cleaner. (Refer to Section 3-5.)

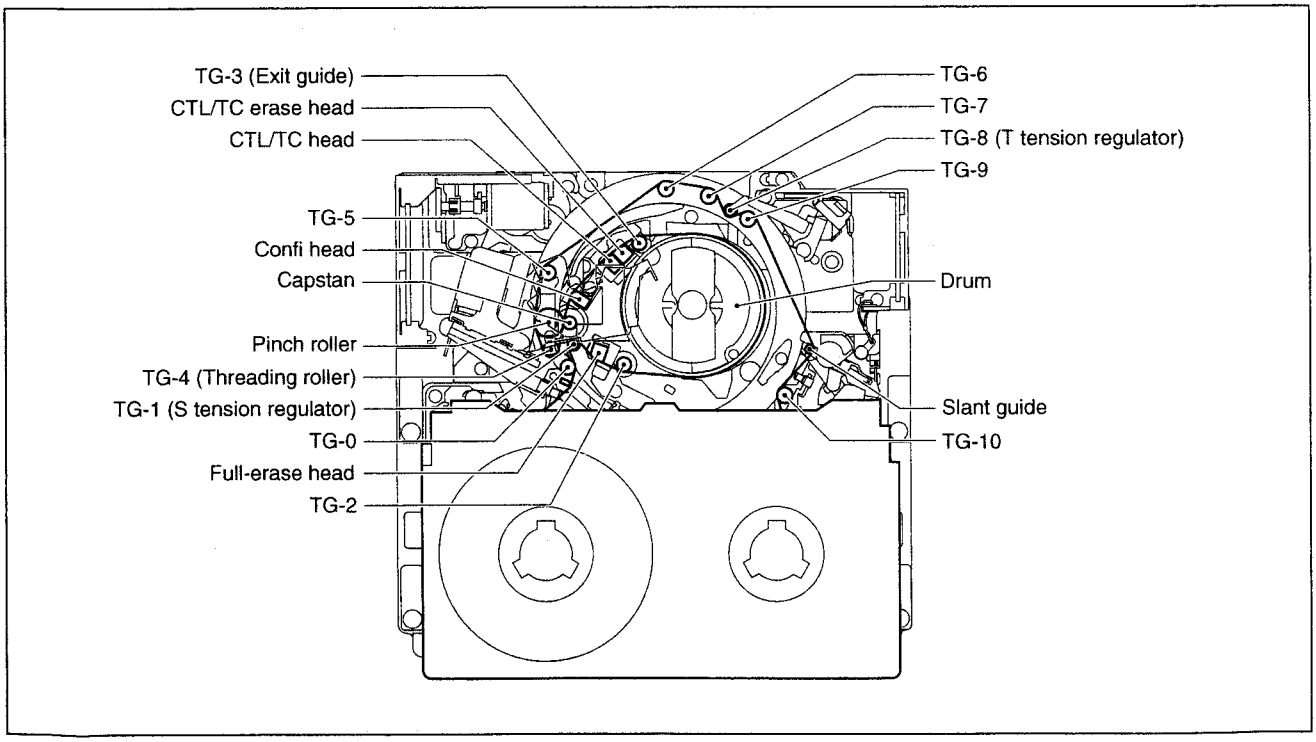
Note

If the W cleaner is attached, the tape-running condition may be difficult to check. Therefore, remove the W cleaner assembly before checking.

(6) Clean the following portions:
- Upper drum tape running surface and rotary head (Refer to Section 2-2-2.)
- Lower drum tape running surface and lead portion (Refer to Section 2-2-3.)
- Stationary head (Refer to Section 2-2-4.)
- Tape running system and tape cleaner (Refer to Section 2-2-5.)

4-1-3. Parts Location of the Tape-running System

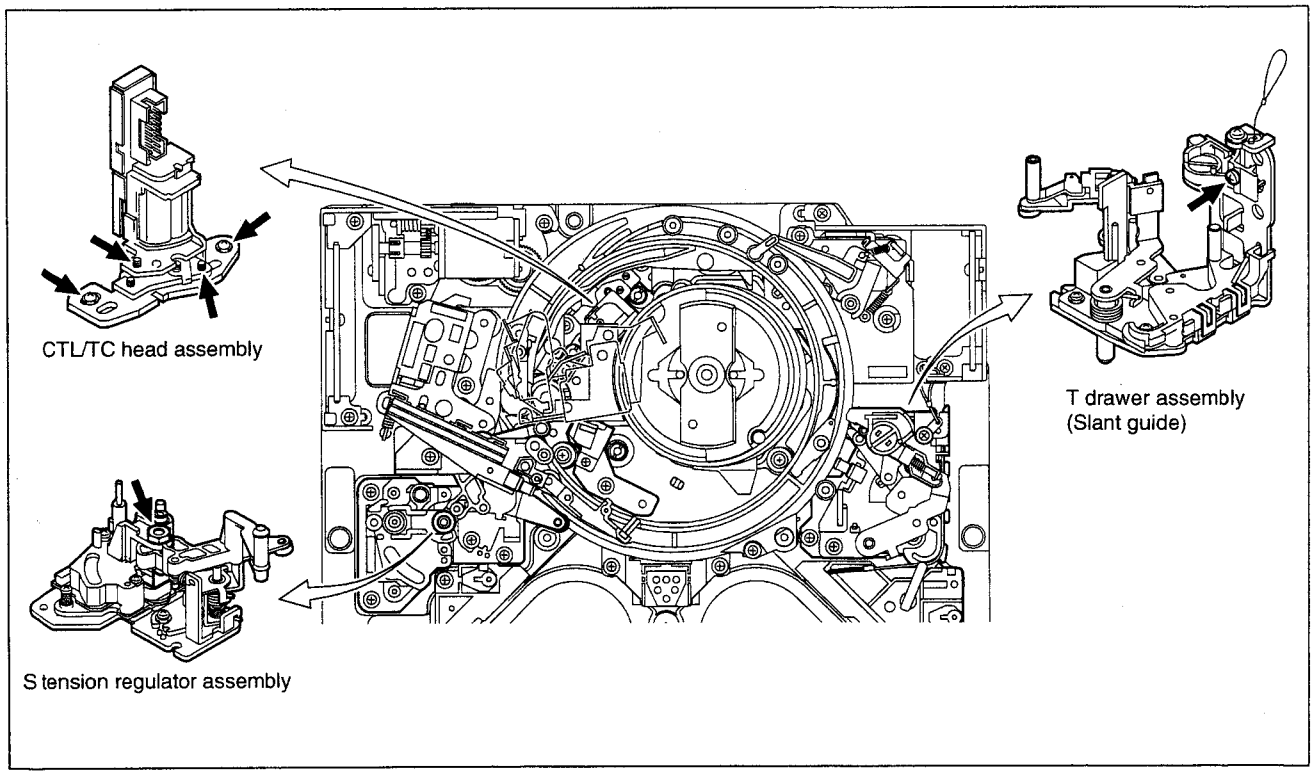
Following figure describes the names of each part of the tape-running system.
It is illustrated in the threading end mode. " TG " in the figure means the tape guide.



4-1-4. Locking Compound

When loosening the following screws, apply the locking compound to the screws after adjustment is completed.
The locking compound that applied to other surrounding parts must be wiped off using gauze or soft cloth.

• Locking compound : 7-432-114-11



4-2. CTL/TC Head Zenith Adjustment

Note

Check and adjustment of CTL/TC head zenith are required only when the CTL/TC head is replaced. In any other cases, this adjustment is unnecessary.

Tools

- Flatness plate (SL-657): J-6086-570-A
- Cleaning cloth: 3-184-527-01
- Cleaning fluid: 9-919-573-01

Check

1. Unthreading End Mode

Check that the unit is in the unthreading end mode.

2. Check the CTL/TC Head Zenith

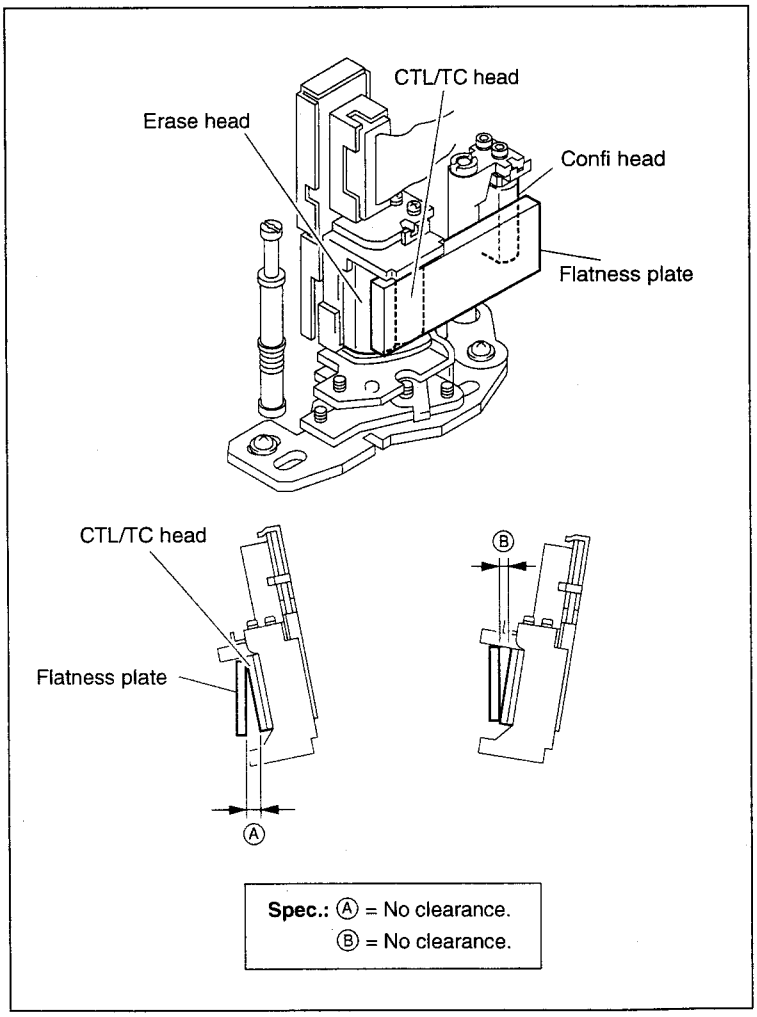
(1) Place the flatness plate lightly against the CTL/TC head and CONFI head.

CAUTION

Be careful not to damage the surface of the CTL/TC head, CONFI head and TG-4 guide.

(2) Check that no clearance exists between the CTL/TC head and flatness plate as confi head reference in step (1).

If the specification is not satisfied, perform steps 3 and later.
If it is satisfied, perform step 7.



CTL/TC Head Zenith Check

Adjustment

3. Remove the CL Guide Rail

Remove the two screws (B3 × 8), then remove the CL guide rail.

4. In Case of Clearance Exists at the Upper Part (Fig. 1)

Turn the zenith adjustment screw counterclockwise to satisfy the specification.

5. In Case of Clearance Exists at the Lower Part (Fig. 2)

Turn the zenith adjustment screw clockwise to satisfy the specification.

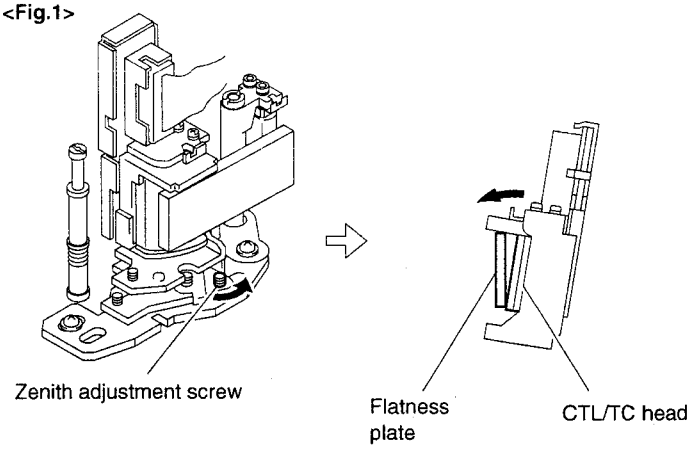
6. Install the CL Guide Rail

Install the CL guide rail with two screws.

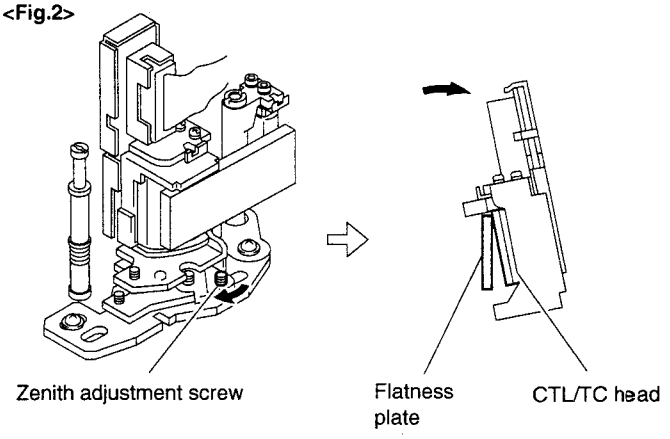
7. Cleaning

Clean the surface of the CTL/TC head, CTL/TC erase head and CONFI head with a cleaning cloth moistened with cleaning fluid.

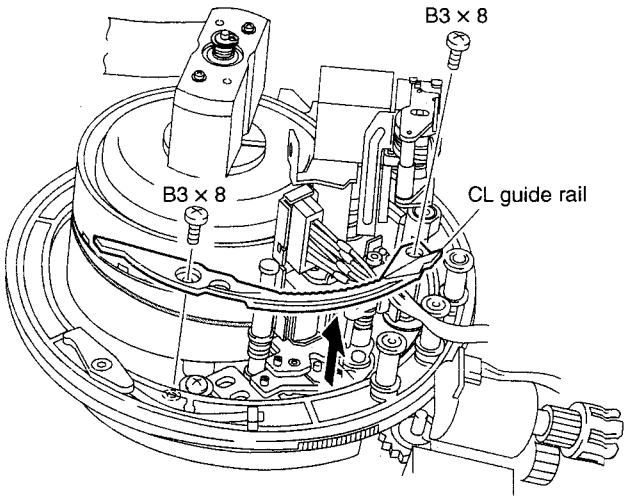
<Fig.1>



<Fig.2>



• **Removal/Installation of the CL guide rail**



CTL/TC Head Zenith Adjustment

4-3. Tape Running Adjustment

Drum entrance side

Tools

- DTF-2 cassette GW2-200GL (L cassette)
- Small round type mirror: J-6080-029-A
- Tape guide adjustment screwdriver (MW-261): J-6322-610-A

Confirmation

1. Set the L cassette

(1) Place the reel table in the L cassette position. (Refer to Section 3-1-4.)

(2) Set the L cassette and put a weight (about 1000 g) on the cassette so that it does not rise up.

2. Turn the Power On

3. Set the unit into the line mode

4. Check the tape running on the entrance side of the drum in the modes below

(a) FWD (PLAY) mode

Check that the tape running condition satisfies specification 1.

If specification 1 is not satisfied, perform steps 5 and 6.

(b) VAR −1 times normal speed mode

Check that the tape running condition satisfies specification 1.

If specification 1 is not satisfied, perform steps 5 and 6.

(c) VAR −5 times normal speed mode

Check that the tape running condition satisfies specification 1.

If specification 1 is not satisfied, perform steps 5 and 6.

(d) F FWD mode

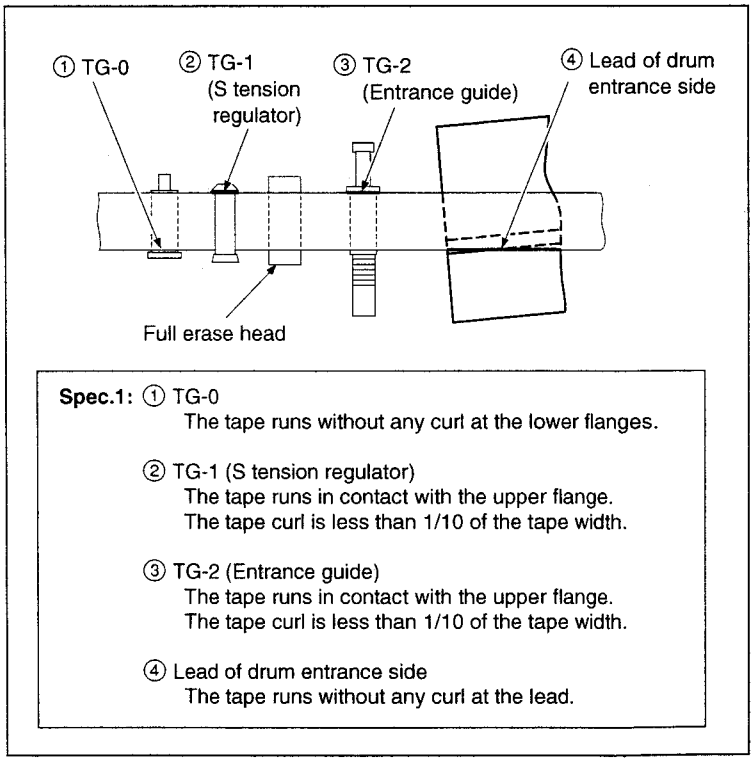
Check that the tape running condition satisfies specification 1.

If specification 1 is not satisfied, perform steps 5 and 6.

(e) REW mode

Check that the tape running condition satisfies specification 1.

If specification 1 is not satisfied, perform steps 5 and 6.


① TG-0
② TG-1 (S tension regulator)
③ TG-2 (Entrance guide)
④ Lead of drum entrance side
Full erase head
Spec.1: ① TG-0
The tape runs without any curl at the lower flanges.
② TG-1 (S tension regulator)
The tape runs in contact with the upper flange.
The tape curl is less than 1/10 of the tape width.
③ TG-2 (Entrance guide)
The tape runs in contact with the upper flange.
The tape curl is less than 1/10 of the tape width.
④ Lead of drum entrance side
The tape runs without any curl at the lead.

Tape Running Check at Drum Entrance Side

Adjustment

5. Adjust the TG-1 and TG-2 (Entrance Guide) Height

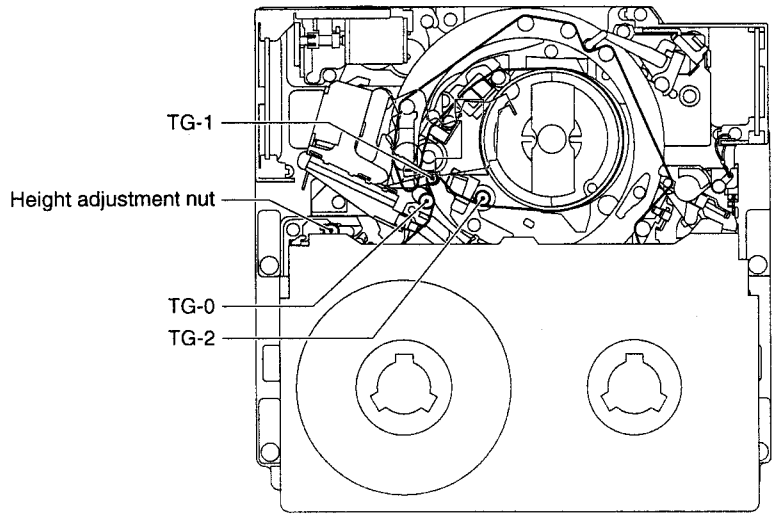
(1) Put the unit into the FWD mode.

(2) Turn the height adjustment nut of TG-1 and the upper flange of TG-2 using a tape guide adjustment driver and adjust the height of TG-1 and TG-2 so that the specification 1 is satisfied.

6. Recheck the Tape Running at Drum Entrance Side

Refer to step 4.

If the specification 1 is not satisfied, perform the adjustment in step 5 again.



Tape Running Adjustment at Drum Entrance Side

Drum Exit Side

Tools

- DTF-2 cassette GW2-200GL (L cassette)
- Small round type mirror: J-6080-029-A
- Tape guide adjustment screwdriver (MW-261): J-6322-610-A

Confirmation

1. Set the L cassette

(1) Place the reel table to the L cassette position. (Refer to Section 3-1-4.)
(2) Set the L cassette and put a weight (about 1000 g) on the cassette so that the cassette does not rise up.

2. Turn the Power On

3. Set the unit into the line mode

4. Check the tape running condition on the exit side of the drum in the modes below

(a) FWD (PLAY) mode

Check that the tape running condition satisfies specification 2.

If specification 2 is not satisfied, perform steps 6 and 8.

(b) VAR −1 time normal speed mode

Check that the tape running condition satisfies specification 2.

If specification 2 is not satisfied, perform steps 7 and 8.

(c) VAR −5 times normal speed mode

Check that the tape running condition satisfies specification 2.

If specification 2 is not satisfied, perform steps 6, 7 and 8.

(d) F FWD mode

Check that the tape running condition satisfies specification 2.

If specification 2 is not satisfied, perform steps 6, 7 and 8.

(e) REW mode

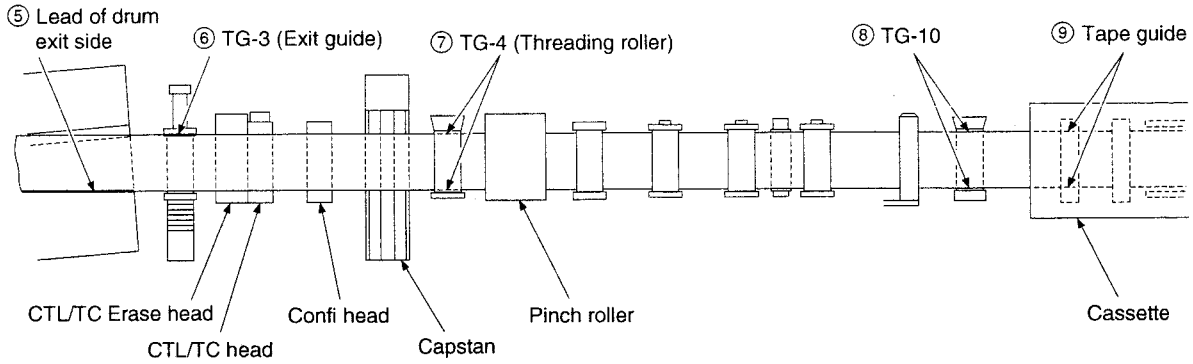
Check that the tape running condition satisfies specification 2.

If specification 2 is not satisfied, perform steps 6, 7 and 8.

5. Check the tape running condition at the T tape guide of a cassette.

(1) Play back the beginning portion of an L cassette.
(2) Check that the tape running condition satisfies specification 3 at the TG-10 guide and the T tape guide of an L cassette.

If specification 3 is not satisfied, perform step 9.



Spec.2: ⑤ Lead of drum exit side
The tape runs without any curl at the lead.

⑥ TG-3(Exit guide)
The tape runs in contact with the upper flange.
The tape curl is less than 1/10 of the tape width.

⑦ TG-4(Threading roller)
The tape runs without any curl at the upper and lower flanges.

Spec.3: FWD mode
⑧ TG-10
The tape runs not in contact with the upper and lower flanges.

⑨ Take-up side tape guide of cassette
The tape runs without any curl at the upper and lower portions of the tape guide.

Tape Running Check at Drum Exit Side

Adjustment

6. Adjust the TG-3 (Exit Guide) Height

(1) Set the L cassette and put the unit into the FWD mode.
(2) Adjust the height of TG-3 by turning the TG-3 height adjustment nut with the tape guide adjustment screwdriver in order to satisfy specification 2.

7. Adjust the TG-4 (Threading Roller) Height (only when the specification is not satisfied in VAR −1 time normal speed mode and VAR −5 times normal speed mode)

(1) Put the unit into the EJECT mode.
(2) Take out the cassette.
(3) Turn the upper flange of TG-5 using the tape guide adjustment driver and adjust the height of TG-5 so that the specification 2 is satisfied.
(4) Set the L cassette and put the unit into the VAR −1 time normal speed mode or VAR −5 times normal mode. At this time, check that the tape running condition satisfies specification 2.

If it is not satisfied, repeat steps (1) through (4) mentioned above.

8. Recheck the Tape Running at Drum Exit Side

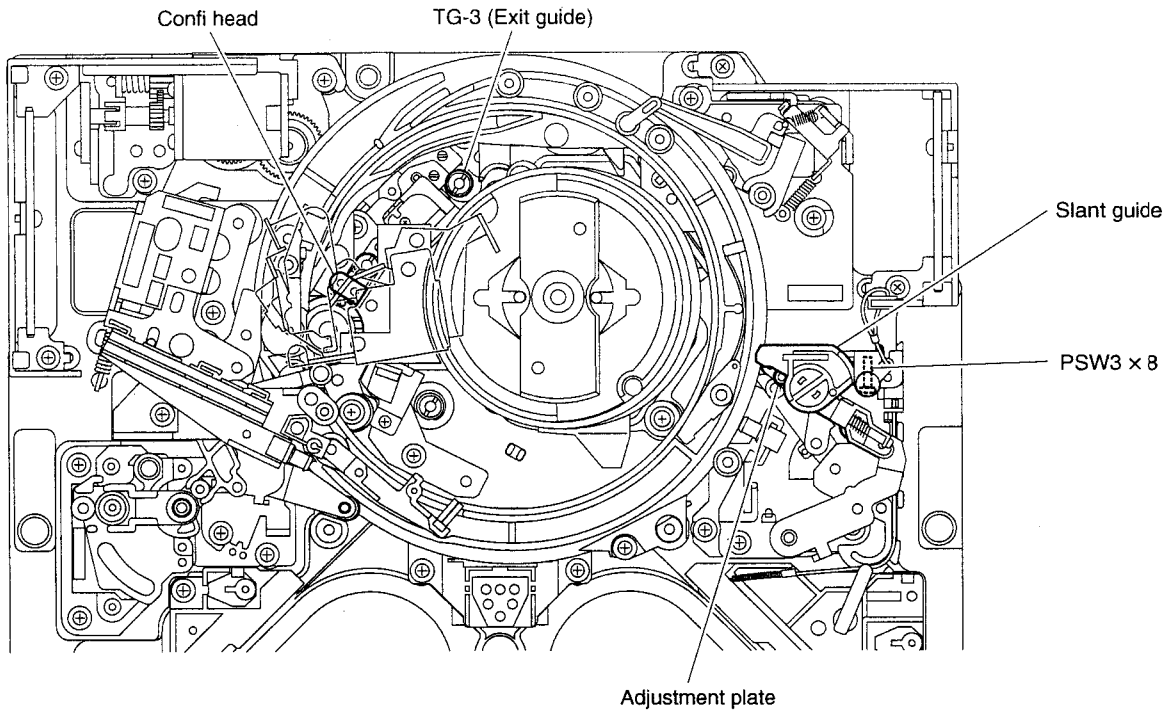
Refer to steps 3 through 7.

If the specification 2 is not satisfied, perform the adjustment in step 6 again.
(If the specification 2 is not satisfied in VAR −1 time normal speed mode and VAR −5 times normal mode, perform the adjustment in step 7 again.)

9. Adjust the Slant Guide Slantness

Adjust the slantness of the slant guide so that specification 3 is satisfied.

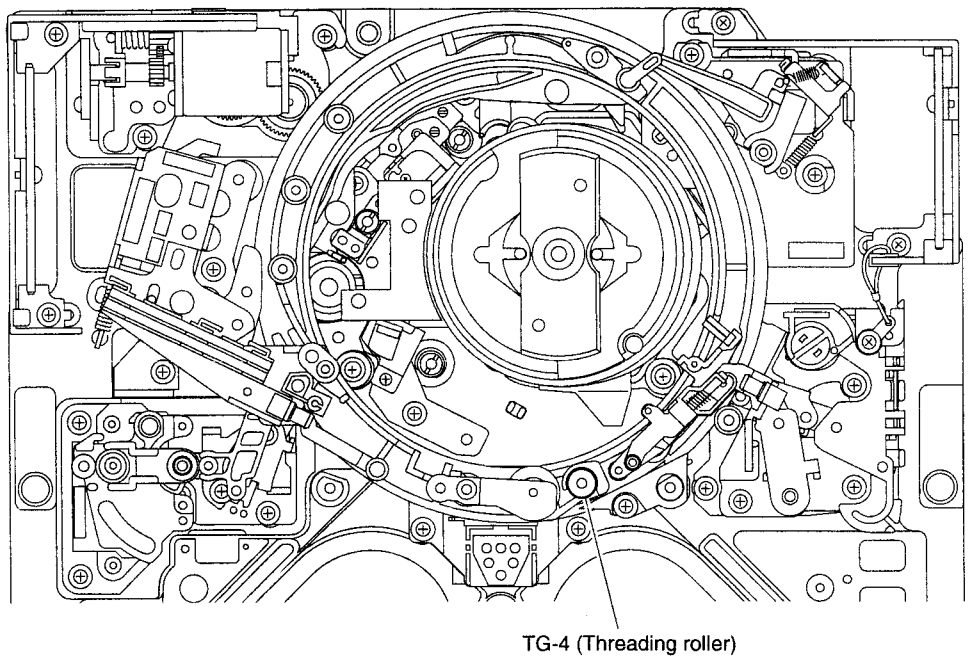
• TG-3 height adjustment/slant guide slantness adjustment



• TG-4 height adjustment

(only when the specification is not satisfied in REV × 10 mode and VAR × −1/30 mode)

<Unthreading end mode>



Tape Running Adjustment at Drum Exit Side

4-4. Tracking Adjustment

Equipment

- Oscilloscope

Tools

- Alignment tape YR2-1A: 8-960-074-32
- Small round type mirror: J-6080-029-A
- Tape guide adjustment driver (MW-261): J-6322-610-A

Preparation

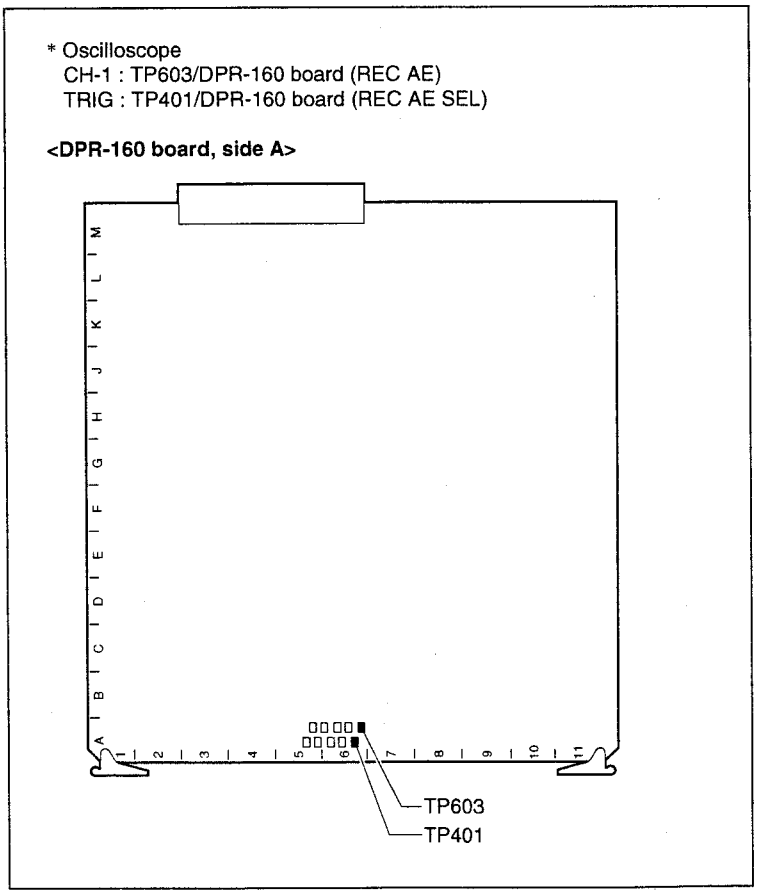
1. Turn the Power Off

2. Connect the Oscilloscope

CH-1: TP603/DPR-160 board (REC AE)
TRIG: TP401/DPR-160 board (REC AE SEL)

3. Set the Alignment Tape

Set the YR2-1A and put a weight (about 1000 g) on the cassette so that it does not rise up.



Preparation

Confirmation

4. Turn the Power On

5. Set the unit into the line mode

6. Check the tape running condition at the entrance and exit sides of the drum in the modes below

(a) FWD mode

(1) Play back the YR2-1A (IDR: 0 to 200000) with the REC head. (R FWD mode)

(2) Set the unit into the tracking adjustment mode. (Refer to Section 1-11.)

(3) Check the both output levels at the drum entrance and the drum exit do not become higher than the output level at the midpoint of the waveform when changing the tracking setting value.

If the output level on the entrance or exit sides becomes higher than the output level in the center portion, perform the adjustment (on the drum entrance or exit side) in steps 7 and later.

(4) Operate the tracking setting value in the + direction to bring the center portion of the RF envelope waveform to the 80 % of the maximum output level, and check the RF envelope waveform satisfies specification 1.

If the output level fluctuates, read the average value. In this case, operate the tracking setting value to maximize the output level at the midpoint of the waveform, and check that the fluctuation amount satisfies the specification 2.

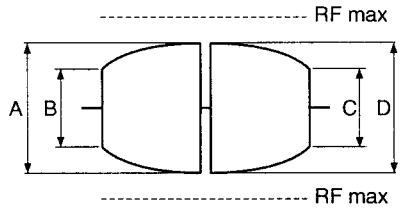
If specifications 1 and 2 are not satisfied, perform the adjustment (on the drum entrance or exit side) in steps 7 and later.

(5) Press the switch S110 (ESC) on the DSP-90 board twice to exit the tracking adjustment mode.

- To be continued. -

• Alignment tape: YR2-1A (IDR : 0 to 200000)

<Head-to-tape contact>



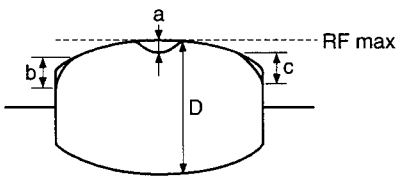
A = RF max × 0.8

Spec.1: $\frac{B}{A} \times 100 \geqq 80\%$

$\frac{C}{A} \times 100 \geqq 80\%$

(Output levels (B and C) at the drum entrance side and exit side are more than 80 % of the center level (A).)

<Fluctuation>



D = average level in the center portion

Spec.2: $\frac{a}{D} \times 100 \leqq 20\%$

$\frac{b}{D} \times 100 \leqq 20\%$

$\frac{c}{D} \times 100 \leqq 20\%$

(Fluctuation amounts (a, b, c) at the drum center portion, entrance side and exit side are less than 20 % of the average level (D).)

(b) VAR −1 Time Speed Mode to FWD (PLAY) Mode

(1) Play back the YR2-1A (IDR: 0 to 200000) with the REC head.

(2) Set the unit into the VAR −5 times speed mode, and after 5 to 7 seconds, press the switch S110 (ESC) on the DSP-90 board. (A press of S110 switch will change the tape running from VAR −5 times normal speed to the REC head playback mode.)

At this time, check the following items (① and ②).

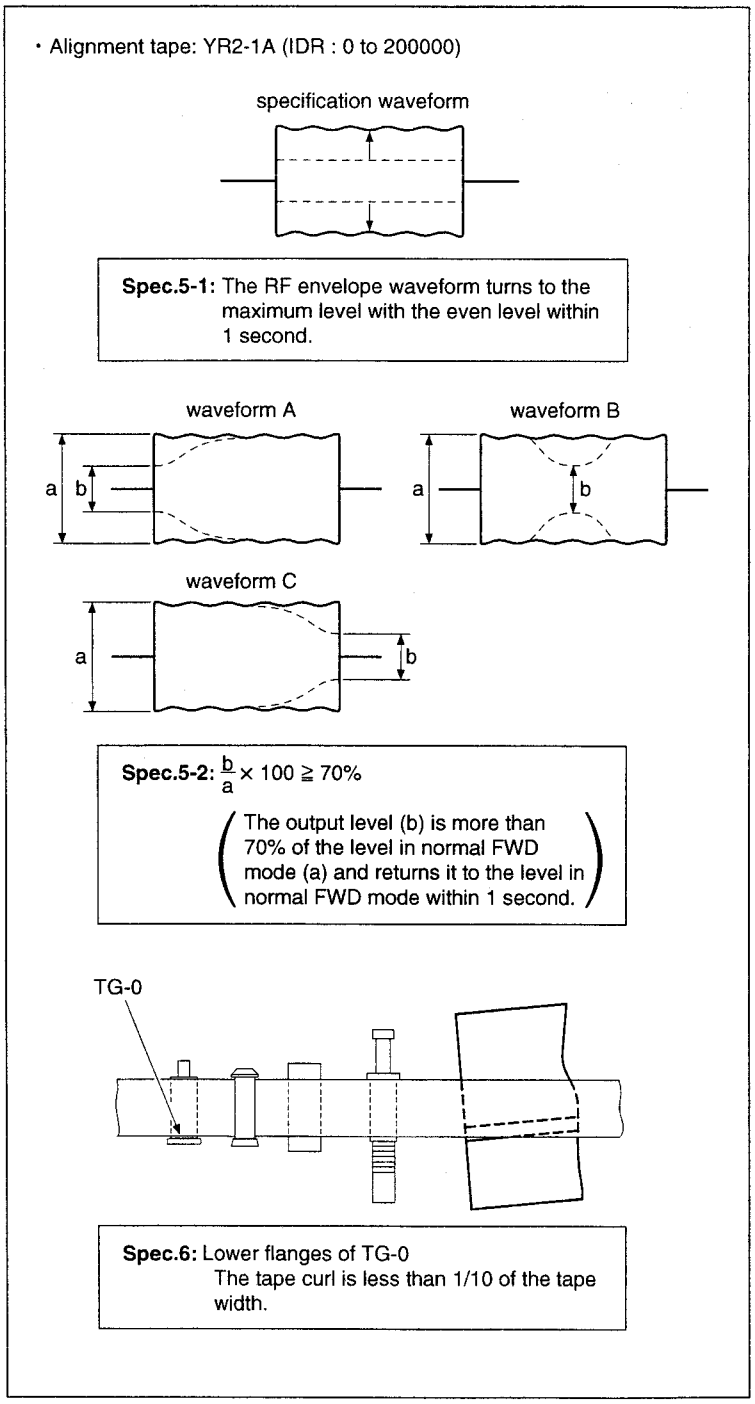
① Check that the RF envelope waveform turns to the maximum level with the even level within 1 second. (Spec.5-1)

In case of the waveform becomes A, B or C, check that the output level (b) is more than 70 % of the level in normal FWD mode (a) and returns it to the level in normal FWD mode within 1 second. (Spec.5-2)

If specification 5-2 is not satisfied in waveform A or B shown in the figure, check the tape running at the drum entrance side. (Refer to Section 4-3.)
If specification 5-2 is not satisfied in waveform C shown in the figure, check the tape running at the drum exit side. (Refer to Section 4-3.)

② Check that the tape curl at the lower flange of TG-0 is less than 1/10 of the tape width. (Spec.6)

If the specification 6 is not satisfied, adjust the height of TG-1 and TG-2.


• Alignment tape: YR2-1A (IDR : 0 to 200000)
specification waveform
Spec.5-1: The RF envelope waveform turns to the maximum level with the even level within 1 second.
waveform A
waveform B
a
b
waveform C
Spec.5-2: b/a × 100 ≧ 70%
The output level (b) is more than 70% of the level in normal FWD mode (a) and returns it to the level in normal FWD mode within 1 second.
TG-0
Spec.6: Lower flanges of TG-0
The tape curl is less than 1/10 of the tape width.

Tracking Check (VAR−1 → FWD)

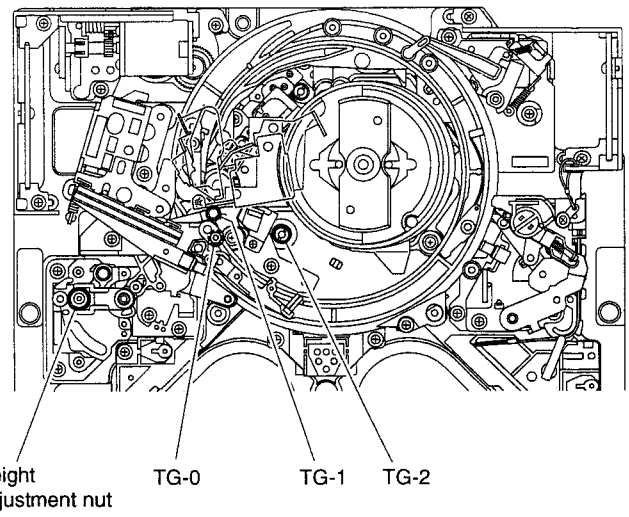
Adjustment

Drum Entrance Side

7. Adjust the Tracking at Drum Entrance Side

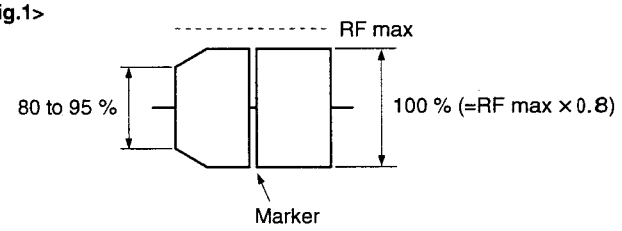
(1) Play back the YR2-1A (IRD: 0 to 200000) with the REC head. (R FWD mode)
(2) Set the unit into the tracking adjustment mode. (Refer to Section 1-11.)
(3) Operate the tracking setting value in the + direction to bring the center of the RF waveform to the 80 % of the maximum output level.
(4) Loosen the upper flange of TG-2 so that the tape does not come in contact with it.
(5) Turn the height adjustment nut of TG-1 so that the RF envelope waveform is as shown in Fig.1.
(6) Turn the upper flange of TG-2 and adjust the height of TG-2 so that the RF envelope waveform becomes flat. (Fig.2)

- To be continued. -

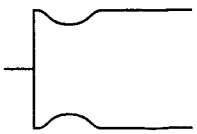


• Alignment tape: YR2-1A (IDR : 0 to 200000)

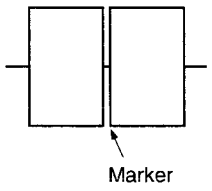
<Fig.1>



If the pressure against the tape at TG-1 and 2 are too much, the waveform becomes as shown in the right figure. (NG)



<Fig.2>



If the waveform does not become flat, perform the check and adjustment below.

① Clean the drum lead with a skewer. (Refer to Section 2-2-3.)

② Press down the tape by skewer very lightly and check that the tape is running without aparting from the drum lead.

③ Adjust the height of TG-2 so that the RF waveform is nearly flat within the range of the specification shown in the Fig 3. At this time, do not overpress the tape at TG-2.

(7) Check the tape running at the drum entrance side in the following modes.

- FWD mode
- VAR −1 time normal speed mode
- VAR −5 times normal speed mode
- F FWD mode
- REW mode

If the tape curl does not satisfy the specification at either TG-0, TG-1 or TG-2, perform the following adjustments while observing the waveform.

① Change the pressure against the tape at TG-1 and TG-2 within the range shown in the Fig. 1.

- If the tape curl at TG-1 exceeds the specification, turn the upper flange of TG-2 clockwise.
- If the tape curl at TG-2 exceeds the specification, turn the height adjustment nut of TG-1 clockwise.

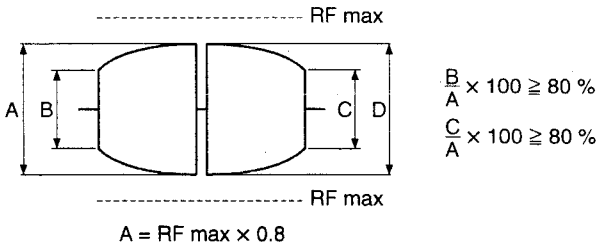
② Perform the tracking adjustment again. (Refer to step (1) through (7) mentioned above.)

(8) Press the switch S110 (ESC) on the DSP-90 board twice to exit the tracking adjustment mode.

8. Recheck the Tracking

Refer to steps 5 through 6.

<Fig.3>



A = RF max × 0.8

<Tape running check>

Spec.1: ① TG-0
The tape runs without any curl at the lower flange.

② TG-1 (S tension regulator)
The tape runs in contact with the upper flange.
The tape curl is less than 1/10 of the tape width.

③ TG-2 (Entrance guide)
The tape runs in contact with the upper flange.
The tape curl is less than 1/10 of the tape width.

④ Lead of drum entrance side
The tape runs without any curl at the lead.

Tracking Adjustment at Drum Entrance Side

Drum Exit Side

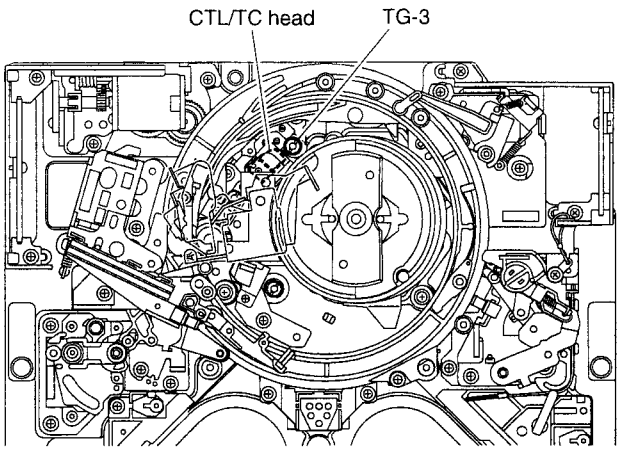
9. Remove the CL Guide Rail

Remove the two screws, then remove the CL guide rail. (Refer to Section 3-20.)

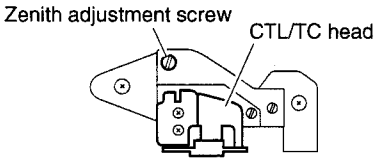
10. Adjust the Tracking at Drum Exit Side

(1) Play back the YR2-1A (IDR: 0 to 200000) with the REC head. (R FWD mode)
(2) Set the unit into the tracking adjustment mode. (Refer to Section 1-11.)
(3) Operate the tracking setting value in the + direction to bring the center of the RF waveform to the 80 % of the maximum output level.
(4) Turn the upper flange of TG-3 counterclockwise by one to two turns so that the tape does not come in contact with the upper flange of TG-3.
(5) Turn the zenith adjustment screw of the CTL/TC head so that the the RF envelope waveform is as shown in Fig. 1.
At this time, check that the tape does not in contact with the upper flange of TG-3.
(6) Turn the upper flange of TG-3 so that the RF envelope waveform becomes flat. (Fig. 2)

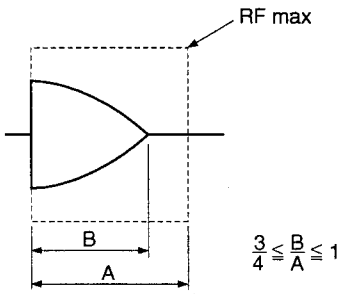
- To be continued. -



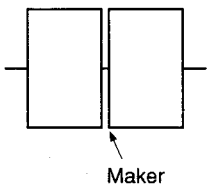
• Alignment tape: YR2-1A (IDR : 0 to 200000)



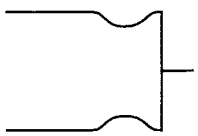
<Fig. 1>



<Fig. 2>



If the pressure against the tape at TG-3 is too much, the waveform becomes as shown in the right figure. (In this case, it is NG)



If the waveform is not flat, perform the check and adjustment below.

① Clean the drum lead with a skewer. (Refer to Section 2-2-3.)

② Press down the tape by skewer very lightly and check that the tape is running without aparting from the drum lead.

③ Adjust the height of TG-3 so that the RF waveform is nearly flat within the range of the specification shown in the Fig.3.
At this time, do not overpress the tape at TG-3.

(7) Adjust the height of TG-4 so that the lower flange of TG-4 comes in contact with the tape.

(8) Check the tape running at the drum exit side in the following modes.
- FWD mode
- VAR −1 time nornal speed mode
- VAR −5 times nornal speed mode
- F FWD mode
- REW mode

If the tape curl does not satisfy the specification at TG-3, perform the following adjustments while observing the waveform.

① Change the zenith of the CTL/TC head within the range shown in Fig. 1.

② Perform the tracking adjustment again. (Refer to steps (1) through (9) mentioned above.)

(9) Press the switch S110 (ESC) on the DSP-90 board twice to exit the tracking adjustment mode.

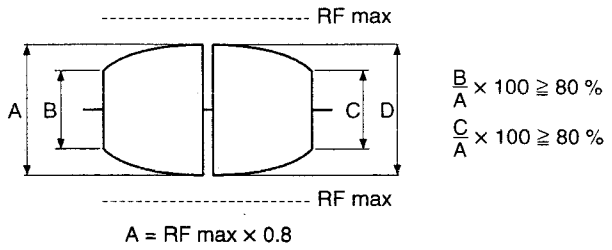
11. Recheck the Tracking

Refer to step 5.

12. Install the CL Guide Rail

Install the CL guide rail with two screws.
(Refer to Section 3-20.)

<Fig.3>



A = RF max × 0.8

<Tape running check>

Spec.2: ⑤ Lead of drum exit side
The tape runs without any curl at the lead.

⑥ TG-3 (Exit guide)
The tape runs in contact with the upper flange.
The tape curl is less than 1/10 of the tape width.

⑦ TG-4
The tape runs in contact with the lower flange.
The tape curl is less than 1/10 of the tape width.

⑧ TG-5 (Threading roller)
The tape runs without any curl at the upper and lower fianges.

Tracking Adjustment at Drum Exit Side

4-5. CTL/TC Head Height Adjustment

Note

The CTL/TC head height adjustment is closely related to the azimuth adjustment and head position adjustment.
Be sure to perform adjustments (or checks) according to "In case the adjustment is performed" in this section when the CTL/TC head height is adjusted.

Equipment

- Oscilloscope

Tool

- Alignment tape YR2-1A: 8-960-074-32

Preparation

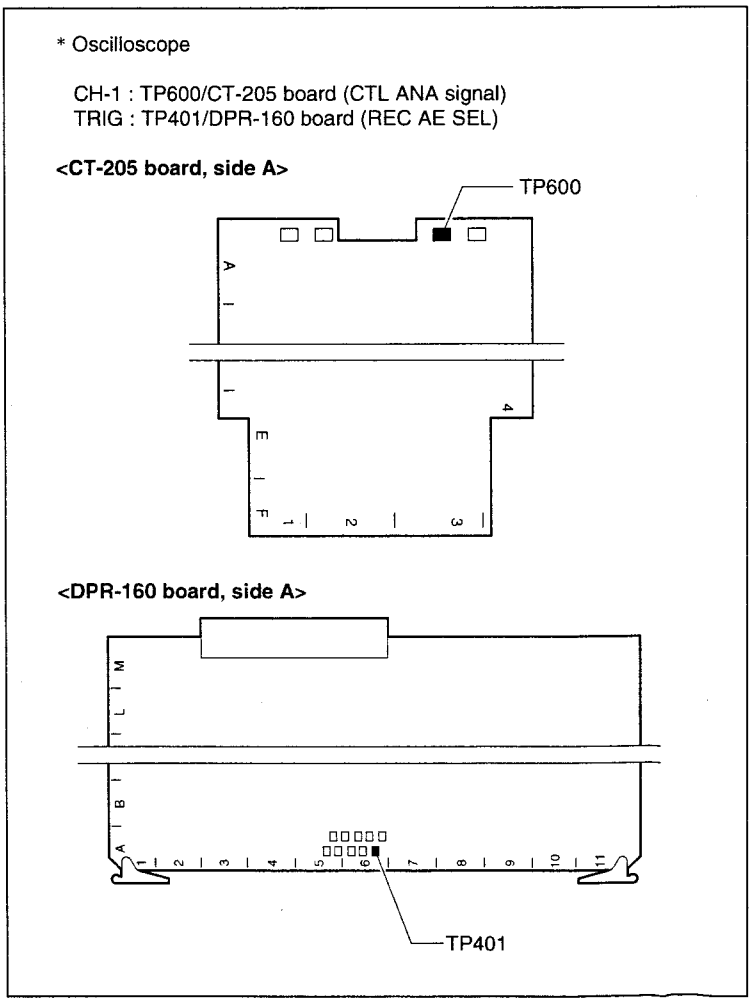
1. Turn the Power Off

2. Connect the Oscilloscope

CH-1: TP600/CT-205 board (CTL ANA signal)
TRIG: TP401/DPR-106 board (REC AE SEL)

3. Set the Alignment Tape

Set the YR2-1A and put a weight (about 1000 g) on the cassette so that it does not rise up.



Preparation

Confirmation

4. Turn the Power On

5. Set the unit into the line mode

6. Play Back the Alignment Tape

Play back the YR2-1A alignment tape (IDR: 0 to 200000). (FWD mode)

7. Check the CTL/TC Head Height

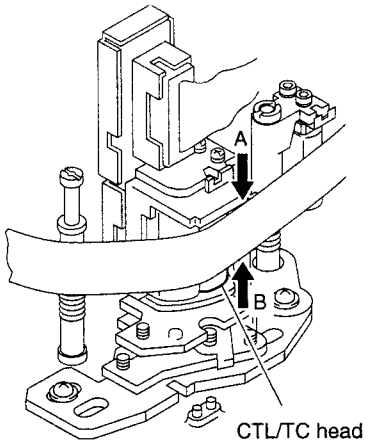
(1) Check that the level decreases when portion A of the tape shown in the figure is pressed down.

If the level increases, perform step 8.

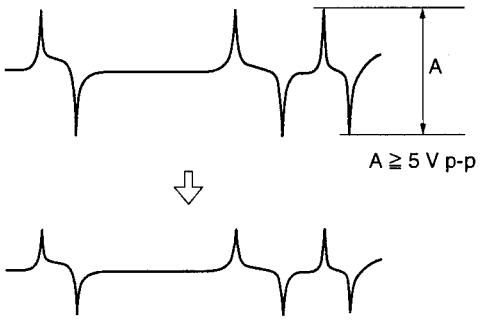
(2) Check that the level decreases when portion B of the tape is pushed up.

If the level increases, perform step 8.

* Alignment tape: YR2-1A



<CTL Output waveform>



Spec. : The level decreases when pressing down and pushing up the alignment tape.

CTL/TC Head Height Check

Adjustment

8. In Case the Level Increases when the Tape is Pressed Down (Fig. 1)

Turn the height adjustment screw clockwise and adjust so that the output waveform is maximum.

9. In Case the Level Increases when the Tape is Pushed Up (Fig. 2)

Turn the height adjustment screw counterclockwise and adjust so that the output waveform is maximum.

In case the adjustment is performed

10. Adjust the CTL/TC Head Azimuth

Refer to Section 4-6.

11. Adjust the CTL/TC Head Position

Refer to Section 4-7.

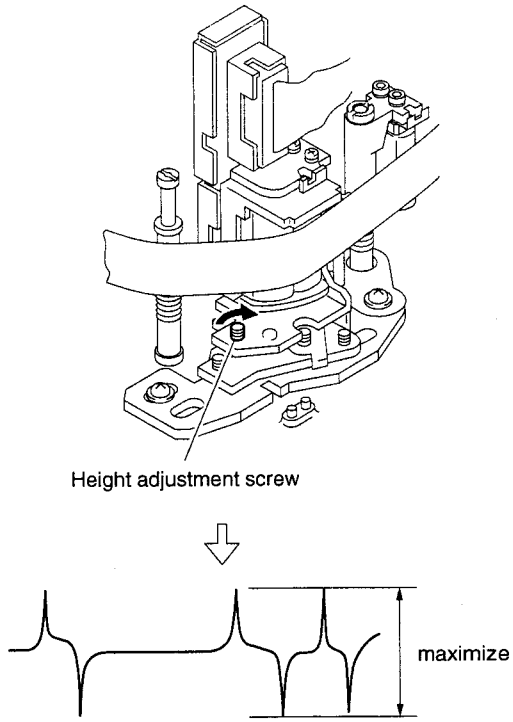
12. Check the CTL/TC Head Height

Refer to steps 6 and 7 in this section.

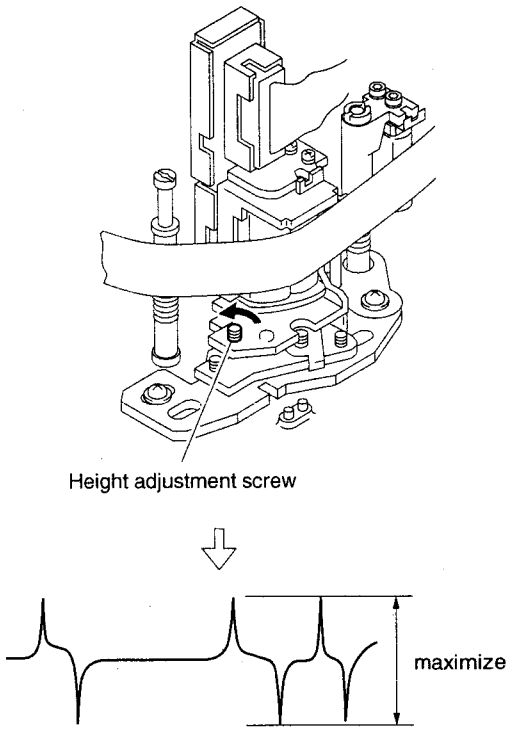
13. Check the CTL/TC Head Azimuth

Refer to Section 4-6.

<Fig. 1>



<Fig. 2>



CTL/TC Head Height Adjustment

4-6. CTL/TC Head Azimuth Adjustment

Note

The CTL/TC head azimuth adjustment is closely related to the head position adjustment and head height adjustment.
Be sure to perform adjustments (or checks) according to "In case the adjustment is performed" in this section when the CTL/TC head azimuth is adjusted.

Equipment

- Oscilloscope

Tool

- Alignment tape YR2-1A: 8-960-074-32

Preparation

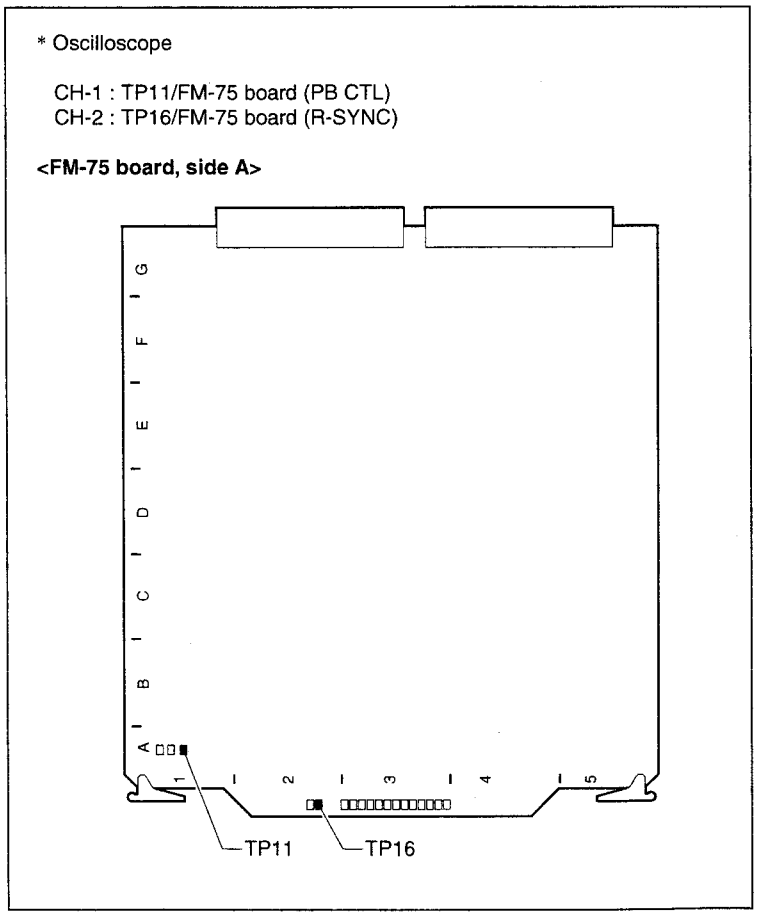
1. Turn the Power Off

2. Connect the Oscilloscope

CH-1: TP11/FM-75 board (PB CTL signal)
CH-2: TP16/FM-75 board (R-SYNC signal)

3. Set the Alignment Tape

Set the YR2-1A and put a weight (about 1000 g) on the cassette so that it does not rise up.



Preparation

Confirmation

4. Turn the Power On

5. Set the unit into the line mode

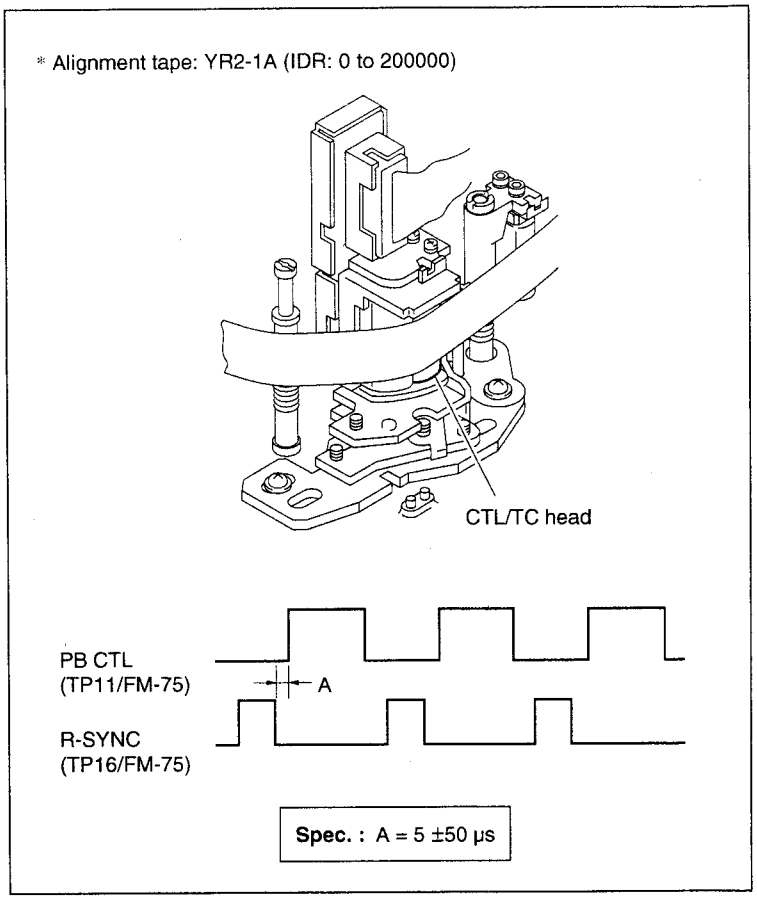
6. Play Back the Alignment Tape

Play back the YR2-1A alignment tape (IDR: 0 to 200000). (FWD mode)

7. Check the CTL/TC Head Azimuth

Check that the positional relationship between the rising edge of CTL signal and falling edge of R SYNC signal satisfies the specification.

If the specification is not satisfied, perform steps 8 and later.



CTL/TC Head Azimuth Check

Adjustment

8. Adjust the CTL/TC Head Azimuth

(1) Turn the azimuth adjustment screw clockwise so that the specification is satisfied.

(2) Strike the portions A and B shown in the figure lightly with the tip of a screwdriver. Then check that the specification is satisfied.

In case the adjustment is performed

9. Adjust the CTL/TC Head Position

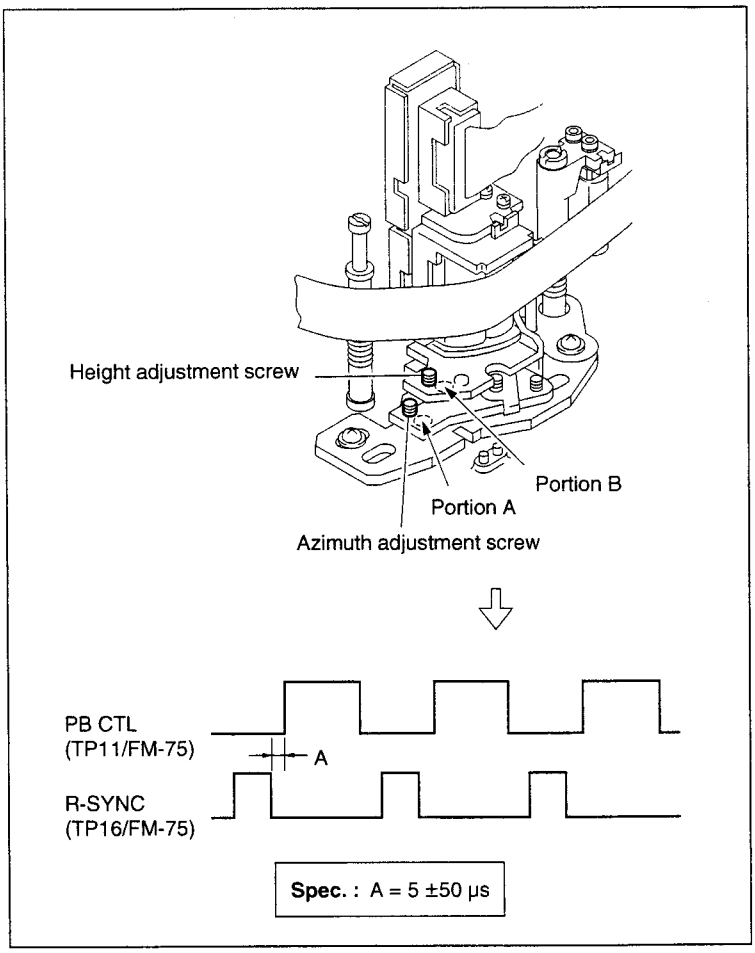
Refer to Section 4-7.

10. Check the CTL/TC Head Height

Refer to Section 4-5.

11. Check the CTL/TC Head Azimuth

Refer to steps 6 and 7 in this section.



CTL/TC Head Azimuth Adjustment

4-7. CTL/TC Head Position Adjustment

Note

The CTL/TC head position adjustment is closely related to the head height adjustment and the head azimuth adjustment.
Be sure to perform adjustments (or checks) according to "In case the adjustment is performed" in this section when the CTL/TC head position is adjusted.

Equipment

- Oscilloscope

Tool

- Alignment tape YR2-1A: 8-960-074-32

Preparation

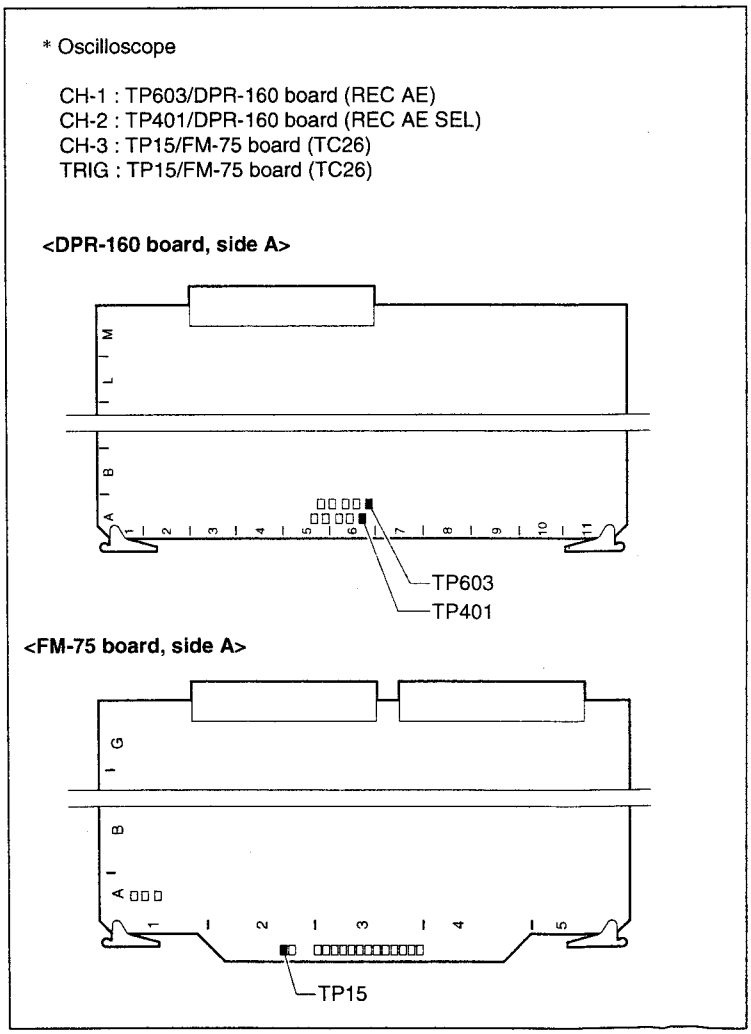
1. Turn the Power Off

2. Connect the Oscilloscope

CH-1: TP603/DPR-160 board (REC AE)
CH-2: TP401/DPR-160 board (REC AE SEL)
CH-3: TP15/FM-75 board (TC26)
TRIG: TP15/FM-75 board (TC26)

3. Set the Alignment Tape

Set the YR2-1A and put a weight (about 1000 g) on the cassette so that it does not rise up.



Preparation

Confirmation

4. Turn the Power On

5. Set the unit into the line mode

6. Play Back the Alignment Tape

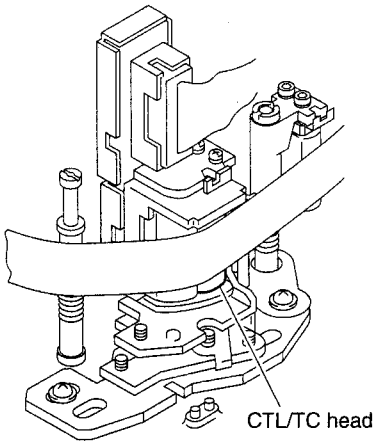
Play back the YR2-1A (IDR: 0 to 200000) with the REC head. (R FWD mode)

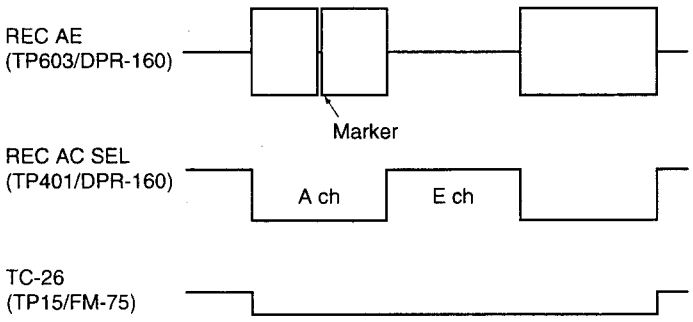
7. Check the CTL/TC Head Position

(1) Set the unit into the tracking adjustment mode. (Refer to Section 1-11.)
(2) Operate the tracking setting value to bring the output level in the center of the RF waveform to the maximum value. Under this condition, check that the marker is positioned at the falling edge of the TC26 signal.
(3) Press the switch S110 (ESC) on the DSP-90 board twice to exit the tracking adjustment mode, and fix the tracking setting value.
(4) Check that the output level in the center portion of the RF waveform satisfies the specification.

If the specification is not satisfied, perform steps 8 and later.

* Alignment tape: YR2-1A (IDR : 0 to 200000)





Spec. : When the tracking control volume is fixed, the output level in the center portion of the RF envelope waveform is maximum.

CTL/TC Head Position Check

Adjustment

8. Remove the CL Guide Rail

Remove the two screws, then remove the CL guide rail. (Refer to Section 3-20.)

9. Loosen the Screws

Loosen the two fixing screws (PSW3 × 8) of the CTL/TC head assembly by 1/4 to 1/2 turn.

10. Adjust the CTL/TC Head Position

(1) Play back the YR2-1A (IDR: 0 to 200000) with the REC head.
(2) Insert a 3 mm flatbladed screwdriver into the notch of the CTL/TC head assembly.
(3) Adjust the CTL/TC head assembly position so that the specification is satisfied.

11. Tighten the Screws

Tighten the two screws loosened in step 9.

12. Recheck the CTL/TC Head Position

Refer to steps 6 and 7 in this section.

13. Install the CL Guide Rail

Install the CL guide rail with two screws. (Refer to Section 3-20.)

In case the adjustment is performed

14. Check the CTL/TC Head Height

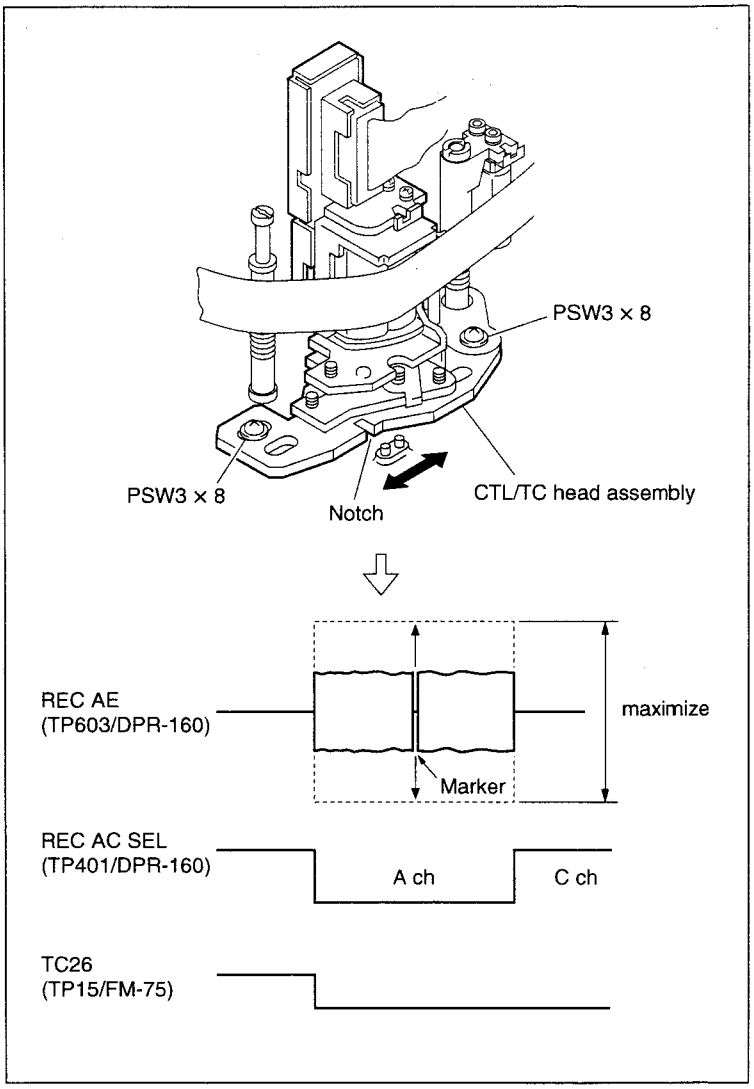
Refer to Section 4-5.

15. Check the CTL/TC Head Azimuth

Refer to Section 4-6.

16. Check the CTL/TC Head Position

Refer to steps 6 and 7 in this section.



CTL/TC Head Position Adjustment

4-8. Time Code Level Adjustment in Rev Mode

Equipment

- Oscilloscope

Tool

- Alignment tape YR2-1A: 8-960-074-32

Preparation

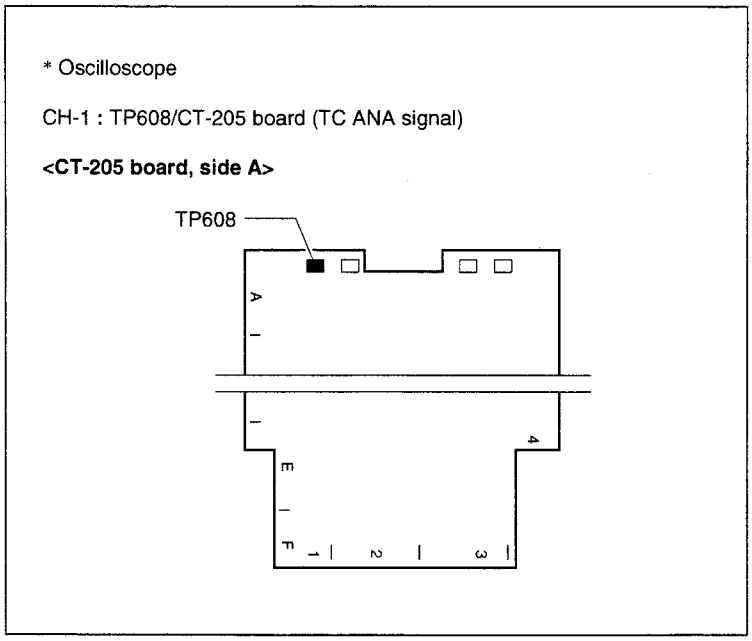
1. Turn the Power Off

2. Connect the Oscilloscope

CH-1: TP608/CT-205 board (TC ANA signal)

3. Set the Alignment Tape

Set the YR2-1A and put a weight (about 1000 g) on the cassette so that it does not rise up.



Preparation

Confirmation

4. Turn the Power On

5. Set the unit into the line mode

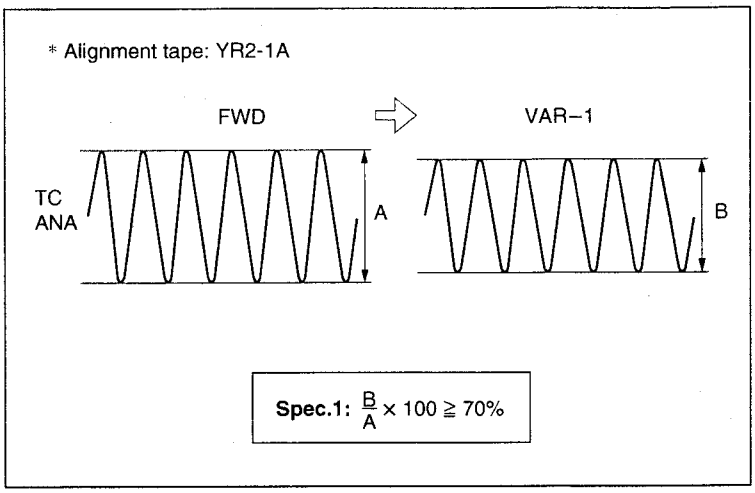
6. Play Back the Alignment Tape
Play back the YR2-1A. (FWD mode)

7. Check the Time Code Output Level
Check the time code output level A.

8. Put the Unit into VAR –1 time normal speed Mode

9. Check the Time Code Output Level
Check that the time code output level B satisfies specification 1.

If the specification 1 is not satisfied, perform steps 10 and later.



Time Code Level Check in REV Mode

Adjustment

10. Adjust the TG-4 (Threading Roller) Height

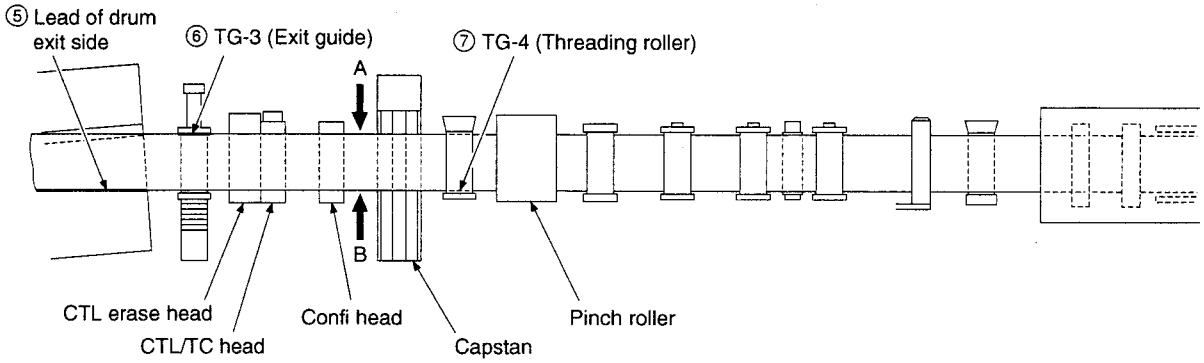
(1) Play back the YR2-1A. (FWD mode)
(2) Put the unit into the VAR −1 time normal speed mode.
(3) In case the level increases when portion A of the tape shown in the figure is pressed down, turn the upper flange of TG-4 clockwise using a tape guide adjustment driver.
In case the level increases when portion B is pushed up, turn the upper flange of TG-4 counterclockwise.
(4) Check the time code output level satisfies specification 1. (Refer to steps 6 through 9.)

If the specification 1 is not satisfied, repeat steps (1) through (4) mentioned above.

11. Check the Tape Running at Drum Exit Side

In the modes below, check that the tape running condition satisfies specification 2.
(1) FWD mode
(2) VAR −5 times normal speed mode
(3) VAR −1 time normal speed mode

If specification 2 is not satisfied, adjust the tape guides height at the drum exit side. (Refer to steps 6 through 8 (at the Drum Exit Side) in Section 4-3.)
If the height of the tape guide is adjusted, perform the tracking check. (Refer to Section 4-4.)



Spec.2: ⑤ Lead of drum exit side
The tape runs without any curl at the lead.

⑥ TG-3 (Exit guide)
The tape runs in contact with the upper flange.
The tape curl is less than 1/10 of the tape width.

⑦ TG-4 (Threading roller)
The tape runs without any curl at the lower flange.

Time Code Level Adjustment in REV Mode

4-9. CONFI Head Height Adjustment

Note

This section describes the CONFI head height adjustment and the CONFI head -to-tape contact adjustment.
Perform the head-to-tape contact adjustment after finished the height adjustment.

Equipment

- Oscilloscope

Tool

- Alignment tape YR2-1A: 8-960-074-32

Preparation

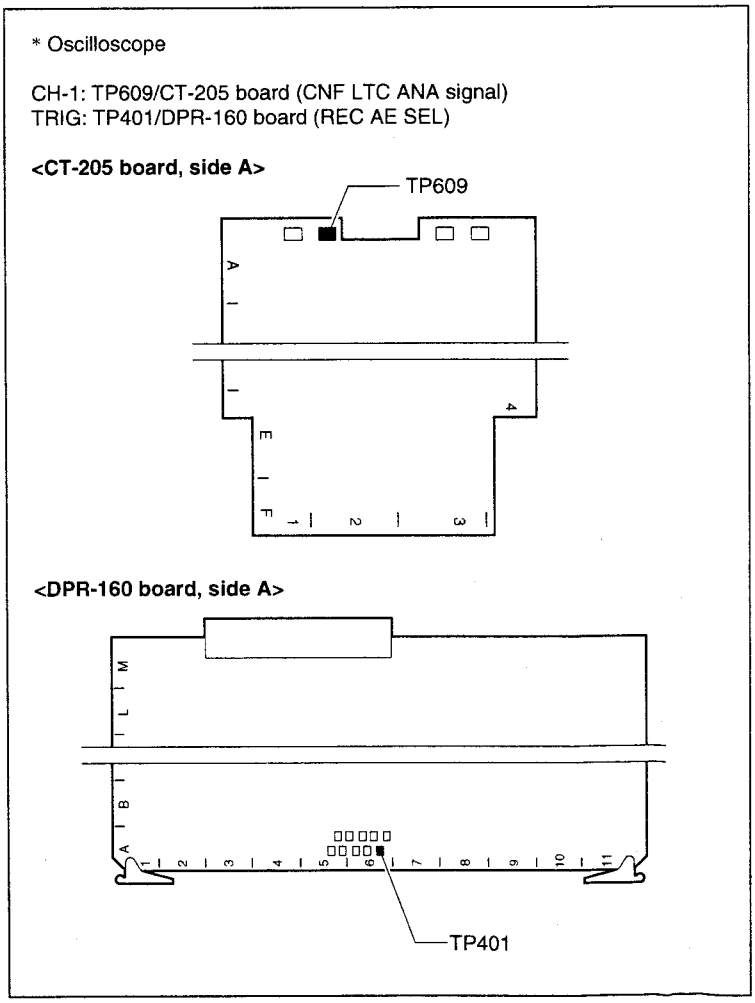
1. Turn the Power Off

2. Connect the Oscilloscope

CH-1: TP609/CT-205 board (CTL ANA signal)
TRIG: TP401/DPR-106 board (REC AE SEL)

3. Set the Alignment Tape

Set the YR2-1A and put a weight (about 1000 g) on the cassette so that it does not rise up.



Preparation

Confirmation

4. Turn the Power On

5. Set the unit into the line mode

6. Play Back the Alignment Tape

Play back the YR2-1A alignment tape (IDR: 0 to 200000). (FWD mode)

7. Check the CONFI Head Height

(1) Check that the level decreases when portion A of the tape shown in the figure is pressed down.

Note

Watch portion E of the waveform. The level change will appear in the portion.

If the level increases, perform step 9.

(2) Check that the level decreases when portion B of the tape is pushed up.

Note

Watch portion E of the waveform. The level change will appear in the portion.

If the level increases, perform step 10.

8. CONFI Head-to-tape Contact Adjustment

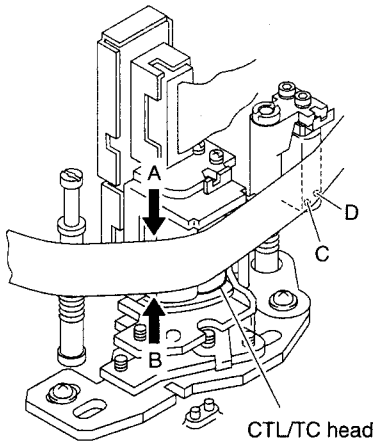
(1) Check that the level does not increase when portion C or D of the tape shown in the figure is slightly pushed.

Note

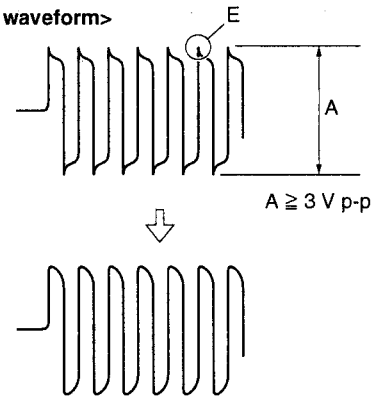
Watch portion E of the waveform. The level change will appear in the portion.

If the level increases, perform step 11.

* Alignment tape: YR2-1A



<Confi LTC Output waveform>



Spec. : The level decreases when pressing down and pushing up the alignment tape.

CONFI Head Height Check

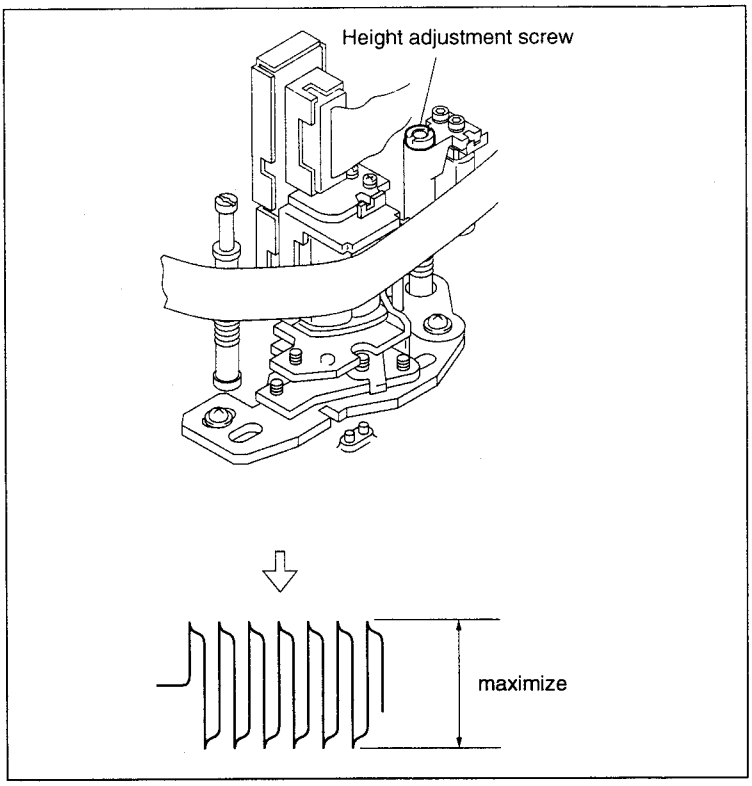
Adjustment

9. In Case the Level Increases when the Tape is Pressed Down

Turn the height adjustment screw clockwise and adjust so that the output waveform is maximum.

10. In Case the Level Increases when the Tape is Pushed Up

Turn the height adjustment screw counterclockwise and adjust so that the output waveform is maximum.

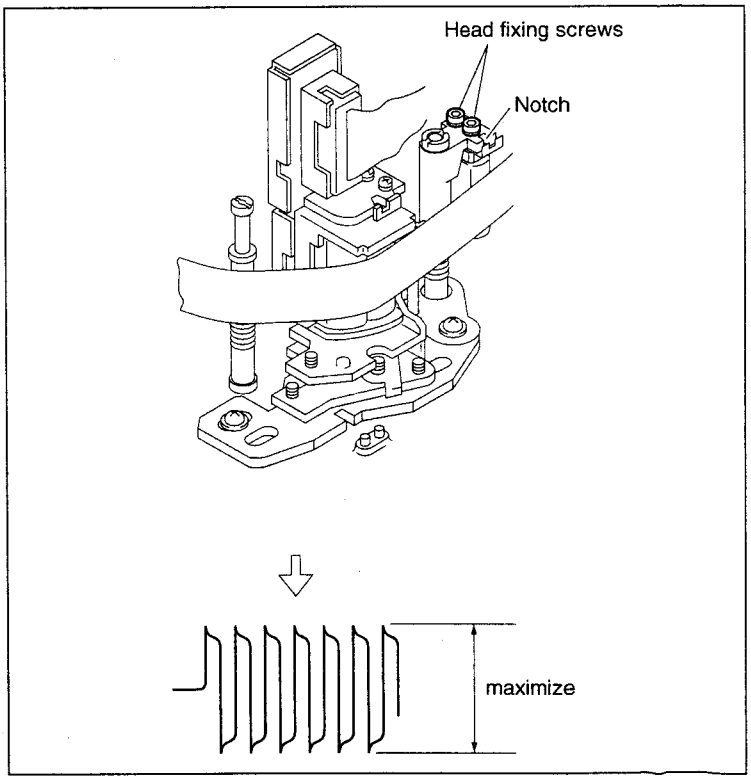


CONFI Head Height Adjustment

11. In Case the Level Increases when Portion C or D of the Tape is Pused

Adjust the CONFI Head as below.

(1) Loosen two head fixing screws 1/4 through 1/2 turns.
(2) Insert a −2 mm screw driver into the notch shown in the figure.
(3) Adjust the position of the CONFI head so that the level of the waveform becomes maximal.
(4) Tighten the two head fixing screws.
Tightening torque : 19.6×10^{-2} N•m
{20 kgf•cm}
(5) Check the CONFI head height again.
Refer to step 7 of this section.



CONFI Head-to-tape Contact Adjustment

4-10. Drum Head Height Check

Equipment

- Oscilloscope

Tool

- Alignment tape YR2-1A: 8-960-074-32

Preparation

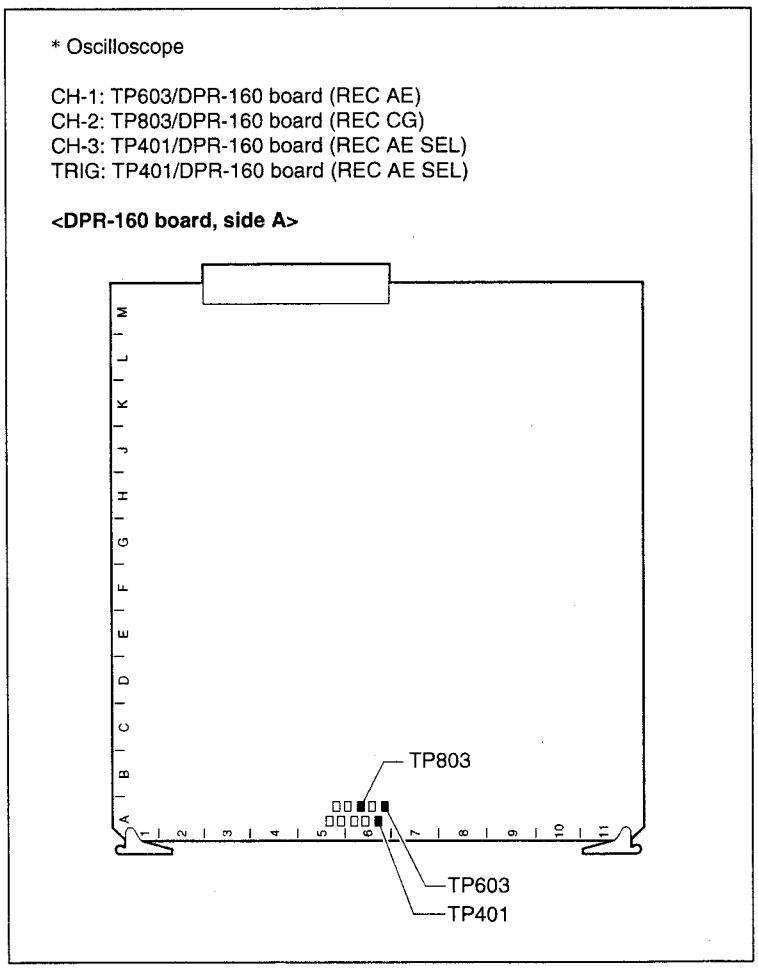
1. Turn the Power Off

2. Connect the Oscilloscope

CH-1: TP603/DPR-160 board (REC AE)
CH-2: TP803/DPR-160 board (REC CG)
CH-3: TP401/DPR-160 board (REC AE SEL)
TRIG: TP401/DPR-160 board (REC AE SEL)

3. Set the Alignment Tape

Set the YR2-1A and put a weight (about 1000 g) on the cassette so that it does not rise up.



Preparation

Confirmation

4. Turn the Power On

5. Set the unit into the line mode

6. Play Back the Alignment Tape

Play back the YR2-1A (IDR: 200000 to 230000) with the REC head. (R FWD mode)

6. Check the Drum Head Height

(1) Set the unit into the tracking adjustment mode.
(Refer to Section 1-11.)

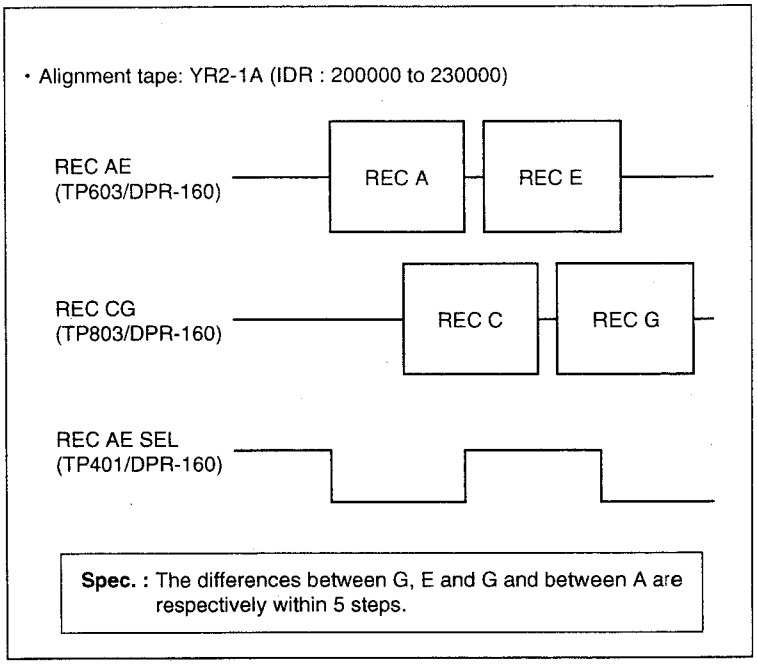
(2) Operate the tracking setting value to bring the RF (REC A) output level to the maximum. Take this tracking setting value as "A".

(3) As well as step 2, take the tracking setting values that maximize the RF output of REC C, REC E and REC G as C, E and G respectively.
Check that each setting value specifies the following specification.

Specification: The differences between G, E and G and between A are respectively within 5 steps.

Perform this check after replacing the upper drum assembly, when the specification is not satisfied, reinstall the upper drum assembly.
(Refer to Section 3-2.)

(4) Press the switch S110 (ESC) on the DSP-90 board twice to exit the tracking adjustment mode.



Drum Head Height Check

Section 5
Maintenance Mode

This section describes the maintenance mode required for maintenance.

5-1. Outline

The maintenance mode of the GY-8240 can be used by entering commands from the terminal of a personal computer (referred to as PC hereafter) connected to the RS-232C connector of the option-1 port, or from the PC/workstation connected to the network port (Ethernet/10BASE-T).

Note

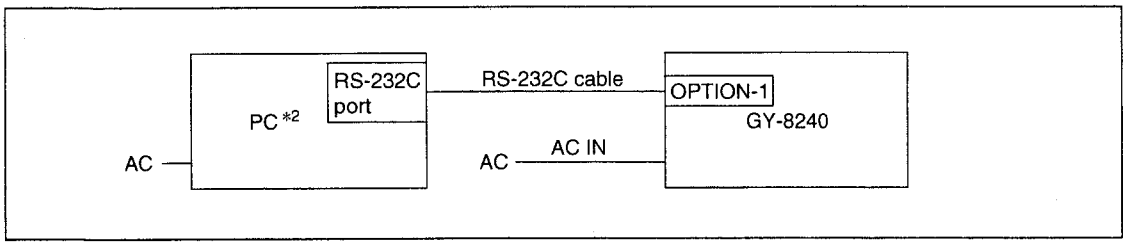
↵ means ENTER key in this section.

5-1-1. Equipments Required and Connection

The following equipments are required for using the maintenance mode. Connect them as shown in the figure below.

1. for RS-232C port

- PC (installed with Microsoft Windows 95/98/NT)
- RS-232C cable *1
- Terminal emulation software *2 (compatible with DEC VT100)
  This software is for performing the emulation of the terminal using the RS-232C port (COM port) of the PC.
  The freeware "Tera Term (Pro)" is recommended.

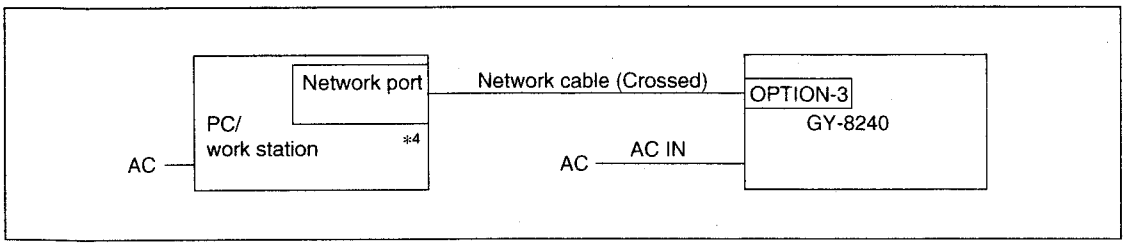


2. for Network port

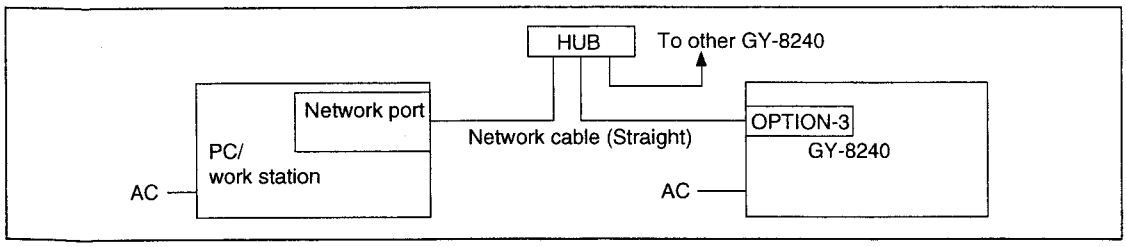
Note

Never connect the GY-8240 network port to a general LAN unless authorized by the network administrator of the LAN.
If the GY-8240 is already connected to the network in a system or LAN, check the network configuration etc. with the network administrator beforehand.
Use of the network port for maintenance without checking may affect the system and LAN.

- PC (installed with Microsoft Windows 95/98/NT)
- Network cable *3
- Terminal software *4
  Use a software which allows connection by Telnet by TCP/IP using the network port (10BASE-T Ethernet port) of the PC and to perform terminal emulation equivalent to VT100.
  The freeware "Tera Term (Pro)" is recommended.



Or



*1 For details on the RS-232C cable used for connecting the GY-8240 and the PC, refer to Section 1-5.

*2 Set the RS-232C port of the PC as follows. (For details on how to change settings, refer to the instruction manual of the PC used, or the instruction manual of the terminal emulation software installed in the PC.)

- Communication baud rate: Set to the same rate as the baud rate of GY-8240 (At shipment, this is set to 38400 bps).
- Character length: 8 bits
- Stop bit: 1 bit
- Parity: None

If the GY-8240 baud rate is not known, set the service menu mode on the front panel, select "SERV menu", then select "Option 1 port" to check the baud rate. After checking, connect as required.

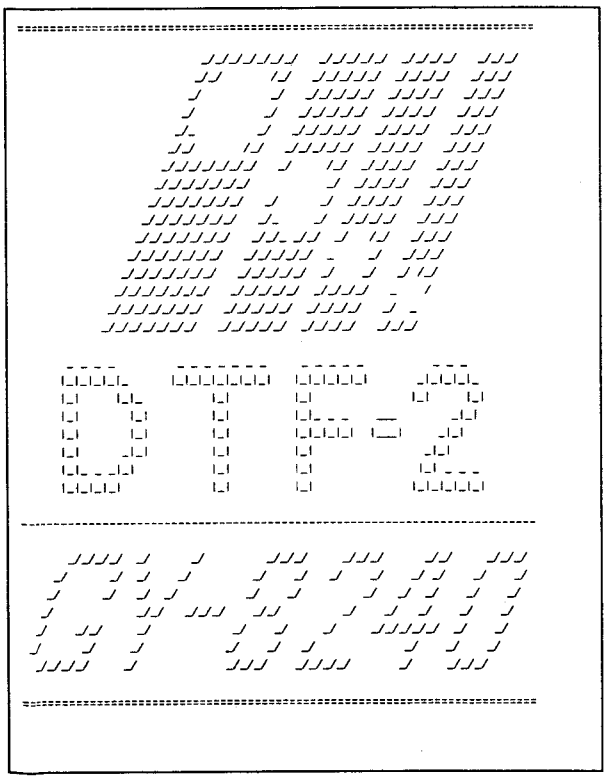
*3 When connecting the PC/workstation and GY-8240 one to one, use a crossed cable. When connecting with a HUB, use a straight cable. (The cable is "straight" in general.)

*4 For details on the network port of the PC/workstation, refer to the instruction manual of the PC/workstation or the instruction manual of the terminal software installed in the PC/workstation. Specify the IP address of the GY-8240 for the connection destination.
If the GY-8240 IP address is not known, set the user menu mode on the front panel, select "SETUP menu", then select "Option 3 port" to check and set the IP address, subnet mask and gateway. After checking and setting, connect as required.

To check if the RS-232C port has been connected and operated normally, start the GY-8240 and check that the following start screen is displayed at the terminal software screen of the PC/workstation connected to each port.
Characters entered will be echoed back. Entering "HELP↵" displays the help menu. (Refer to 5-2-1. HELP Mode for details.)
For the network port, after starting the GY-8240, connect by Telnet, and enter the HELP command to check the connection.

Note

Example of the start screen



5-2. List of Menu Configurations

5-2-1. Activating the Maintenance Mode

Note

The results displayed and numerical values on the PC screen described in this section are just one example and sometimes differ from those of the unit actually used.
Unless otherwise specified, both capital and small letters can be entered for alphabets.
In this section, "CTRL-C" key means pressing the CTRL and C keys together.

Vendor information setting mode (For more details, refer to Section 5-3.)

This mode is used to set various vendor information.
Activation: Enter "CUSTOM↵".
Termination: Enter "QUIT↵".

Self-diagnosis mode (For more details, refer to Section 5-4.)

This mode is used to check the GY-8240.
Activation: Enter "DIAG↵".
Termination: Enter "QUIT↵".

Download mode (For more details, refer to Section 5-5.)

This mode is used to download the firmware of the GY-8240.
Activation: Enter "UPDATE↵".
Termination: Enter "QUIT↵".

Log display mode (For more details, refer to Section 5-6.)

This mode is used to display the history of SCSI sequence and internal operation states.
Activation: Enter "LOG↵".
Termination: Enter "QUIT↵".

ROM mode (For more details, refer to Section 5-7.)

This mode is used to display the ROM version of each CPU.
Activation: Enter "ROM↵".
Termination: Automatically terminated after execution.

Service setting mode (For more details, refer to Section 5-8.)

This mode is used to set the RS-232C baud rate etc.
Activation: Enter "SERV↵".
Termination: Enter "QUIT↵".

Automatic adjustment mode (For more details, refer to Section 5-9.)

This mode is used to adjust the drive.
Activation: Enter "ADJ↵".
Termination: Enter "QUIT↵".

Setup mode (For more details, refer to Section 5-10.)

This mode is used to perform various settings.
Activation: Enter "SETUP↵".
Termination: Enter "QUIT↵".

CPU connection mode (For more details, refer to Section 5-11.)

This mode is used to enable use of the maintenance mode of each CPU by connecting to the CPU. Not displayed in the HELP command list.
Activation: Enter "THRU↵".
Termination: Enter "Q↵".

Initial setting mode (For more details, refer to Section 5-12.)

This mode is used to set all setting data memorized in the NVRAM to initial values. Not displayed in the HELP command list.
Activation: Enter "DEF↵".
Termination: Enter "QUIT↵".

HELP mode

This mode is used to display the list of maintenance commands.
Activation: Enter "HELP↵".
Termination: Automatically terminated after execution.

```
help↵
+===[ Maintenance mode menu ]=============================================+
|                                                                         |
| CUSTOM : Inquiry info. set mode      DIAG   : Diagnostic mode           |
| UPDATE : Firmware update mode        HELP   : Display this menu         |
| LOG    : Log display mode            ROM    : ROM version display       |
| SERV   : Operation mode set mode     ADJ    : Adjustment mode           |
| SETUP  : Setup mode                                                     |
|                                                                         |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+
```

HELP Command Execution Screen

5-2-2. Command Description

The menu structure of the GY-8240 is shown below.

[GY-8240 Menu Structure]

TOP

- ROM ----- ROM Version display
- DIAG ----- (diagnostic mode)
  - 1 : All check
  - 2 : Dip switch display
  - 3 : ROM version display
  - 4 : Serial number display
  - 5 : Hours meter display
  - 6 : Hours meter clear
  - 7 : Maintenance value display
  - 8 : Maintenance value set
  - 11 : FMT CPU
  - 12 : SYS CPU
  - 13 : SV CPU
  - 14 : IF CPU
  - 15 : DSP CPU
  - help : Display help
  - quit : Quit
- LOG ----- (log display mode)
  - clear : Clear all logs
  - upload : Upload all logs
  - adsp : Upload all set values and logs
  - 11 : FMT CPU
  - 12 : SYS CPU
  - 13 : SV CPU
  - 14 : IF CPU
  - help : Display help
  - quit : Quit
- UPDATE ----- (firmware update mode)
  - 1 : From maintenance port
  - 2 : From tape
  - help : Display help
  - quit : Quit
- CUSTOM ----- (inquiry info set mode)
  - 1 : Vendor information set
  - 2 : Vendor information display
  - 3 : Serial number set
  - 4 : Serial number display
  - help : Display help
  - quit : Quit
- SERV ----- (operation mode set mode)
  - 1 : Service information set
  - 2 : Service information display
  - 3 : Default service information set

help : Display help
quit : Quit

- SETUP ----- (setup mode)
  - 1 : Setup information set
  - 2 : Setup information display
  - 3 : Default setup information set
  - help : Display help
  - quit : Quit
- ADJ ----- (adjust mode)
  - 1 : SV check
  - 2 : All motors, tention sensors adj.
  - 3 : Auto PG adjust
  - 51 : RF PB All Adjust (DTF-2)
  - 52 : RF PB All Adjust (DTF-1)
  - 53 : RF error rate (DTF-2 PB align)
  - 54 : RF error rate (DTF-2 REC confi)
  - 55 : RF error rate (DTF-2 REC/PB)
  - 56 : RF error rate (DTF-1 PB Align)
  - 57 : RF ATF amp gain adjust
  - 58 : RF data save
  - help : Display help
  - quit : Quit
- DEF ----- (machine default set mode)
  - 1 : NVRAM default set for GY
  - 2 : NVRAM default set for DIR
  - help : Display help
  - quit : Quit
- THRU ----- (Non-IF control mode)
  - 1 : FMT CPU
  - 2 : SYS CPU
  - 3 : SV CPU
  - q : Quit

5-3. CUSTOM Mode

This mode is used to display and set vendor information.
Entering "CUSTOM ⏎" from the maintenance terminal sets the CUSTOM mode. The message "CUSTOM=>" will be displayed as the prompt.
Enter the command number (or command) after this prompt and press ⏎. The command will be executed.
Entering "quit ⏎" after this prompt terminates the CUSTOM mode.

Note

The CUSTOM mode cannot be activated from other mode. To activate the CUSTOM mode, terminate the current mode first.

5-3-1. Quit Tool

Function: Exits the CUSTOM mode and returns to the maintenance mode.
Operation: Enter "quit ⏎".

5-3-2. Display Help Menu

Function: Displays the CUSTOM mode menu.
Operation: Enter "help ⏎".

```
CUSTOM=>help ⏎
+===[ Custom menu ]=========================================================+
|                                                                           |
| quit: Quit Tool                        help: Display Help Menu            |
|                                                                           |
|  1 : Vendor information set             2 : Vendor information display    |
|  3 : Serial number set                  4 : Serial number display         |
|                                                                           |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

CUSTOM=>
```

Display Help Menu Execution Screen

5-3-3. Vendor Information Set

Function: Sets vendor information.
Operation: Enter "1 ↵".

The entry of a value will be prompted at each item. Enter after "=>" for each item.
Press ↵ after entering each item to execute.
Pressing only ↵ does not change the current value.
(The current value is displayed in the [ ].)

Vendor information which can be set are the following six items.

- Vendor ID (within 8 characters)
- Vendor name (within 8 characters)
- Vendor ROM version (within 4 characters)
- Model name (within 16 characters)
- Interface information (select one)
- Series information (select one)

After setting all the above items, a message to confirm whether to set the value entered will be displayed.
Entering "Y ↵" writes the value in the memory area for storage (NVRAM).
Entering "N ↵" does not change the setting.

```
CUSTOM=>1↵

*****[ VENDOR INFORMATION SET ]************************
Vendor ID (0-99999999)                  [0]                 =>1000↵
Vendor name (8 characters)              [SONY    ]          =>↵
Vendor ROM version (4 characters)       [1.00]              =>1.30↵
Machine name (16 characters)            [GY-8240         ] =>GY-8240↵
Interface (0:SCSI-WD/1:SCSI-WS/2:SCSI-UWD/3:SCSI-LVD/8:Fibre channel/12:VRP)
                                        [2]                 =>12↵
Series (0:GY-10/1:GY-2120/2:GY-8240/3:DIR-240/4:DIR-120/5:EVALUATOR)
                                        [2]                 =>3↵
Are you sure? (Y:yes/N:no) =>Y↵
CUSTOM=>
```

Vendor Information Setting Screen

Default value of each item

- Vender ID: 0
- Vender name: SONY
- Vender ROM version: 1.00
- Machine name: GY-8240
- Interface: 2
- Series: 2

5-3-4. Vendor Information Display

Function: Displays vendor information.
Operation: Enter "2↵".

```
CUSTOM=>2↵

*****[ VENDOR INFORMATION DISPLAY ]**********************
Vendor ID (0-99999999)                    [0]
Vendor name (8 characters)                [SONY    ]
Vendor ROM version (4 characters)         [1.00]
Machine name (16 characters)              [GY-8240         ]
Interface (0:SCSI-WD/1:SCSI-WS/2:SCSI-UWD/3:SCSI-LVD/8:Fibre channel/12:VRP)
                                          [2]
Series (0:GY-10/1:GY-2120/2:GY-8240/3:DIR-240/4:DIR-120/5:EVALUATOR)
                                          [2]

CUSTOM=>
```

Vendor Information Display Screen

5-3-5. Serial Number Set

Function: Sets the serial number.
Operation: Enter "3↵".

The entry of the serial number will be prompted. So enter after "=>".
After entering the serial number, press ↵.
Pressing only ↵ does not change the current value.
The serial number must be within 8 characters.
After setting the serial number, a message to confirm whether to set the value entered will be displayed.
Entering "Y↵" sets the setting and writes it in the memory area for storage (NVRAM).
Entering "N↵" does not change the setting.

```
CUSTOM=>3↵

*****[ SERIAL NUMBER SET ]*************************
Serial number                             [00000000]          => 10080↵

Are you sure? (Y:yes/N:no) => y↵

CUSTOM=>
```

Serial Number Set Execution Screen

5-3-6. Serial Number Display

Function: Displays the serial number.
Operation: Enter "4 ↵".

```
CUSTOM=>4↵

*****[ SERIAL NUMBER DISPLAY ]**********************
Serial number                          [10080   ]

CUSTOM=>
```

Serial Number Display Execution Screen

5-4. DIAG Mode

This mode is used for checking the GY-8240 status and whether errors have been occurred.
It can also be used to display the following items.

- State of DIP switches on the boards
- Hours meter
- ROM version
- Serial number of GY-8240
- Maintenance time

The DIAG mode can be set by entering "DIAG↵" from the maintenance terminal.
"DIAG=>" will be displayed as the prompt.
Enter the command number (or command) after this prompt and press ↵. The command will be executed.
Entering "quit↵" after this prompt terminates the DIAG mode.

Note

The DIAG mode cannot be activated from other mode. To activate the DIAG mode, terminate the current mode first.

5-4-1. Quit Tool

Function: Exits the DIAG mode and returns to the maintenance mode.
Operation: Enter "quit↵".

5-4-2. Display Help Menu

Function: Displays the DIAG mode menu.
Operation: Enter "help↵".

```
DIAG=> help↵

+===[ Diagnostic menu ]=================================================+
|                                                                       |
| quit: Quit tool          help: Display HELP MENU                      |
|                                                                       |
|   1: All check                     2: Dip switch display              |
|   3: ROM version display           4: Serial number display           |
|   5: Hours meter display           6: Hours meter clear               |
|   7: Maintenance value display     8: Maintenance value set           |
|                                                                       |
|  11: FMT CPU  12: SYS CPU  13: SV CPU  14: IF CPU  15: DSP CPU        |
|                                                                       |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+
DIAG=>
```

Display Help Menu Execution Screen

5-4-3. All Check

Function: Executes the self-diagnosis of all CPUs.
Operation: Enter "1↵".

For details on self-diagnosis, refer to "5-4-11. FMT CPU" and after it.

5-4-4. Dip Switch Display

Function: Displays dip switch information of each CPU.
Operation: Enter "2↵".

```
DIAG=> 2↵

**** [DIP SWITCH DISPLAY] ****
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| SW Name |  1  |  2  |  3  |  4  |  5  |  6  |  7  |  8  |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| FMT (S2) | OFF |  ON | OFF | OFF | OFF | OFF | OFF | OFF |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| SYS (S3) |  ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| SV (SX)  | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| IF (S2)  | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| DSP (S2) | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+

DIAG=>
```

Dip Switch Display Execution Screen

5-4-5. ROM Version Display

Function: Displays the version of each CPU.
Operation: Enter "3↵".

```
DIAG=> 3↵

*** [ ROM VERSION DISPLAY ] ***
[FW Rev] X.XX

[FMT]              XX.XX.XX
[SYS]              XX.XX.XX
[IF]               XX.XX.XX
[SV1]              XX.XX.XX
[SV2]              XX.XX.XX
[DSP]              XX.XX.XX
[ISP]              XX.XX.XX

DIAG=>
```

ROM Version Display Execution Screen

5-4-6. Serial Number Display

Function: Displays the serial number.
Operation: Enter "4↵".

```
DIAG=> 4↵

*****[ SERIAL NUMBER DISPLAY ]**********************
Serial number                          [00000000]

DIAG=>
```

Serial Number Display Execution Screen

5-4-7. Hours Meter Display

Function: Displays the Hours meter data.
Operation: Enter "5↵".

```
DIAG=> 5↵

**** [HOURS METER DISPLAY] ****
+----------+----------+----------+----------+
| Operation| DrumRun-1| DrumRun-2|  DrumRun |
|   [Hours]|   [Hours]|   [Hours]|   [Hours]|
+----------+----------+----------+----------+
|      1468|         0|        25|       314|
+----------+----------+----------+----------+
|  Thread  | Thread-1 | Cleaning |Cleaning-1|
|   [Times]|   [Times]|   [Times]|   [Times]|
+----------+----------+----------+----------+
|      1123|         0|     62499|         0|
+----------+----------+----------+----------+

DIAG=>
```

Hours Meter Display Execution Screen

Description of display

Operation: Total conduction time (Sum of energized time to the GY-8240)

DrumRun-1: Total drum rotating time (1).
DrumRun-1 is a meter for periodic maintenance of the GY-8240. The hours meter can be reset at the GY-8240.

DrumRun-2: Total drum rotating time (2).
DrumRun-2 is a meter for periodic cleaning of the GY-8240. The meter is automatically reset when cleaning is performed with a cleaning tape.

DrumRun: Total drum rotating time (total time the drum rotated).

Thread: Total times of threadings.
The number cannot be reset.

Thread-1: Times of threadings.
Meter for periodic maintenance of the GY-8240. The number can be reset at the GY-8240.

Cleaning: Total times of operations by the cleaning roller.
The number cannot be reset.

Cleaning-1: Times of operations by the cleaning roller.
Meter for periodic maintenance of the GY-8240. The number can be reset at the GY-8240.

5-4-8. Hours Meter Clear

Function: Clears the hours meter.
Operation: Enter "6↵".

When executed, the hours meter selection message will be displayed. Select the hours meter to be cleared, and press ↵ to clear.
If a menu number which cannot be selected is entered, the hours meter clear menu will be exited.
1:Drum Run-1, Drum Run-2: Clears the hours meters for Drum Run-1 and Drum Run-2.
2:Thread-1: Clears Thread Count-1.
3:Cleaning-1: Clears the Cleaning roller Count-1.
A confirmation message will be displayed. To clear, enter "y↵". To not clear, enter "n↵".

```
DIAG=> 6↵

**** [HOURS METER CLEAR] ****
Select hours meter
  (1:DrumRun-1, DrumRun-2/2:Thread-1/3:Cleaning-1) =>1↵
Are you sure? (Y:yes/N:no) =>y↵
Hours meter clear complete

DIAG=>
```

Hours Meter Clear Execution Screen

5-4-9. Maintenance Value Display

Function: Displays the maintenance time setting.
Operation: Enter "7↵".

```
DIAG=> 7↵

*****[ MAINTENANCE VALUE DISPLAY ]**********************
Cleaning (hours)                    [50]
Maintenance-1 (hours)               [1000]

DIAG=>
```

Maintenance Value Display Execution Screen

5-4-10. Maintenance Value Set

Function: Sets the maintenance time.
Operation: Enter "8↵".

Enter a value for each item, and press ↵.
Pressing only ↵ does not change the current value.
(The current value is displayed in the [ ].)
A message to confirm whether to set the value entered will be displayed. To set, enter "y↵". To not set, enter "n↵".

```
DIAG=> 8↵

*****[ MAINTENANCE VALUE SET ]**********************
Cleaning (hours)                    [50]          =>100↵
Maintenance-1 (hours)               [1000]        =>2000↵

Are you sure? (Y:yes/N:no) => y↵

DIAG=>
```

Maintenance Value Set Execution Screen

Recommended values for items

- Cleaning hours: 50
- Maintenance-1 hours: 1000

5-4-11. FMT CPU

Function: Entes the DIAG mode of the FMT CPU.
Operation: Enter "11↵".

After selecting this item, the DIAG menu of the FMT CPU will be automatically displayed.

```
DIAG=>11↵
<< Through Mode >>

Select Cpu (1:FMT/2:SYS/3:SV/q:quit) => 1
DIAG

+--<< GY-8240 FMT DIAGNOSTIC MENU >>-----------------------------------+
|  quit: Quit Tool                                                     |
|  help: display help Menu                                             |
|                                                                      |
|  11:FMT All Check                                                    |
|  12:PCI RAM Check                                                    |
|  13:ROM Check                                                        |
|  14:RAM Check                                                        |
|  15:DMA Check                                                        |
|  16:Bank Memory Check                                                |
|                                                                      |
|                                        Copyright (c) 2000, SONY Corp.|
+----------------------------------------------------------------------+

FMT_DIAG =>
```

FMT CPU Execution Screen

1. Quit tool

Function: Exits the DIAG mode of the FMT CPU.
Operation: Enter "quit↵".

2. All Check (FMT CPU)

Function: Performs all chek items of FMT CPU.
Operation: Enter "11↵".
The items listed below are checked:

- BANK MEMORY Check
- WORK MEMORY Check
- ROM Check
- PCI MEMORY Check
- DMA Check

Being normal or not will be displayed for each item.
When an error occurs in checking, the error is displayed and the operation ends.

```
FMT_DIAG => 11↵
--------[ Bank Check  (FMT CPU)          ]-------
Bank Memory          OK
 -------[ RAM Check  (FMT CPU)           ]-------
RAM Check            OK
 -------[ ROM Check  (FMT CPU)           ]-------
ROM Check            OK
 -------[ FMT PCI RAM Check  (FMT CPU)   ]-------
Start                OK
 -------[ FMT DMA Check  (FMT CPU)       ]-------
Start                OK


FMT_DIAG =>
```

5-4-12. SYS CPU

Function: Enters the DIAG mode of the SYS CPU.
Operation: Enter "12↵".
After selecting this item, the DIAG menu of the SYS CPU will be automatically displayed.

```
DIAG=> 12↵
```

SYS CPU Execution Screen

1. Quit tool

Function: Exits the DIAG mode of the SYS CPU.
Operation: Enter "quit↵".

2. Display Help menu

Function: Displays the DIAG mode command list of the SYS-CPU.
Operation: Enter "help↵"

```
(SYS-CPU):DIAG MODE => help

+--<< SYS-CPU DIAG MENU [help] >>-----------------------------------------+
|  quit: Quit Tool              all: check all diag                        |
|  help: display help Menu                                                 |
|                                                                          |
|  <<< ROM >>>    <<<     >>>   <<<     >>>   <<< ADC >>>    <<<     >>>   |
|  31:RomRamCompare                         63:Loopback test               |
|                                                                          |
|                                  Copyright (c) 2000- Sony Corp.          |
+--------------------------------------------------------------------------+

(SYS-CPU):DIAG MODE => _
```

3. All Check (SYS CPU)

Function: Automatically performs all check items of SYS.
Operation: Enter "all↵".

4. ROM RAM Compare (SYS CPU)

Function: Compares the firmware in the ROM area and one extended in the RAM. When they do not coincide with each other, errors are displayed.
Operation: Enter "31↵".

5. EE loop back test (SYS CPU)

Function: The EE loop back test forwards the data in the Bank memory through the actual transmission route, and then compares the returned data with the original one. The verify test is executed in the ID size of DTF-2. It will be performed 12 times in various patterns

Operation: Enter "63↵".

a. Loop back test in the DPR board

```
(SYS-CPU):DIAG MODE => help

+--<< SYS-CPU DIAG MENU [help] >>-----------------------------------------+
|  quit: Quit Tool              all: check all diag                        |
|  help: display help Menu                                                 |
|                                                                          |
| <<< ROM >>>    <<<     >>>   <<<     >>>   <<< ADC >>>    <<<     >>>   |
| 31:RomRamCompare                          63:Loopback test               |
|                                                                          |
|                                            Copyright (c) 2000- Sony Corp.|
+--------------------------------------------------------------------------+

(SYS-CPU):DIAG MODE => 63
Bank Address decided !!
MEM[62914560] MBLK[1] BANK[6][10485760]  ID[234496] LEN[44]
Bank has changed.  mode[1] size[10485760] bankno[6]
<< SYS EE Infinity Test >>
Test Mode [CRC OFF] (2:EE-2(DPR)/3:EE-3(EQ))
          [CRC ON ] (5:EE-2(DPR)/6:EE-3(EQ))=>
```

Function: Performs the loop back test in the DPR board only. If some error occurs, it will be caused by failures of the DPR or FM board.

Operation: Enter "2↵".

b. EQ board loop back test

Function: Performs the loop back test in including the EQ board. If some error occurs, it will be caused by failures of the DPR, FM or EQ board.

Operation: Enter "3↵".

c. Loop back test in DPR (with CRC)

Function: Performs the loop back test with the CRC error correction code in the DPR board only. If some error occurs, it will be caused by failures of the DPR or FM board.

Operation: Enter "5↵".

d. EQ board loop back test (with CRC)

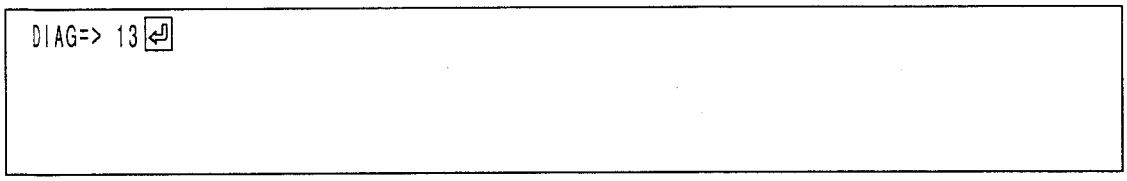
Function: Performs the loop back test with the CRC error correction code in including the EQ board. If some error occurs, it will be caused by failure of the DPR, FM or EQ board.

Operation: Enter "6↵".

5-4-13. SV CPU

Function: Enters the DIAG mode of the SV CPU.
Operation: Enter "13↵".

After selecting this item, the DIAG menu of the SV CPU will be automatically displayed.



SV CPU Execution Screen

DIAG Menu of Servo

Command	Check
MENU	Displays list of DIAG MENU
R1	TAPE TOP sensor, DEW
R2	Cassette compartment sensor
R3	Cassette switch
CH00	Tape running check
CH01	Threading motor check
CH02	Reel shift motor check
CH03	Cassette compartment check
CH05	Pinch roller check, cleaning roller
CH06	Capstan motor check
CH07	S reel, T reel motor check
CH08	Drum motor check
SV1B	Executes servo all check
SV18	ATF operation check
SV19	SAT operation check
HM	Hours meter

* Be sure to turn the power off and then on after performing DIAG operations of the servo.

a. MENU

Function: Displays the menu list.

Operation: Enter "MENU ⏎". The menu list will be displayed as below.

```
SV1_DIAG=>MENU ⏎
-----SVMenu-----
SV18:Check, Atf              R0:SensorOff
SV19:Check, Sat              R1:Sensor1 (Bot, Eot, Dew, Th, Rs)
SV1A:Check, ByHost           R2:Sensor2 (Cc)
SV1B:Check, All              R3:Sensor3 (Hole)
CH00:REW/REV/FWD/FF/STILL R4:ServoLocks
CH01:Threading               HM:Hours
CH02:ReelPositioning
CH03:CassetteCompartment
CH04:--reserved--
CH05:CleaningRoller, PinchRoller
CH06:Capstan
CH07:Reel&Brake
CH08:Drum
VR:FirmwareVersion
Q:ExitTolf
':':TopMenu
SV1_DIAG=>
```

b. R1-TAPE TOP/END Sensor and Dew Sensor Check

Function: Displays the states of the tape top sensor, tape end sensor and dew sensor.
Refer to the next page on the position of each sensor.

Operation:

(1) Without loading any cassette, enter "R1 ↵". The following will be displayed.

```
SV1_TOP=>R1 ↵




[TTop-] [TEnd-] [Dew-] [Unth-] [Thre*] [SftL*] [SftS-]
0000 0000 0000
```

The following indicates the current status of the respective sensors.
When the sensor is functioning, the display changes from "–" to "*".

[Ttop-]: Tape Top sensor
[TEnd-]: Tape End sensor
[Dew-]: Dew sensor
[Unth-]: Unthread End sensor
[Thre-]: Thread End sensor
[SftL-]: Reel L Position sensor
[SftS-]: Reel S Position sensor

(2) Check the following.

① When a screwdriver is moved near only the tape top sensor, the display changes from "[Ttop-]" to "[TTop*]".

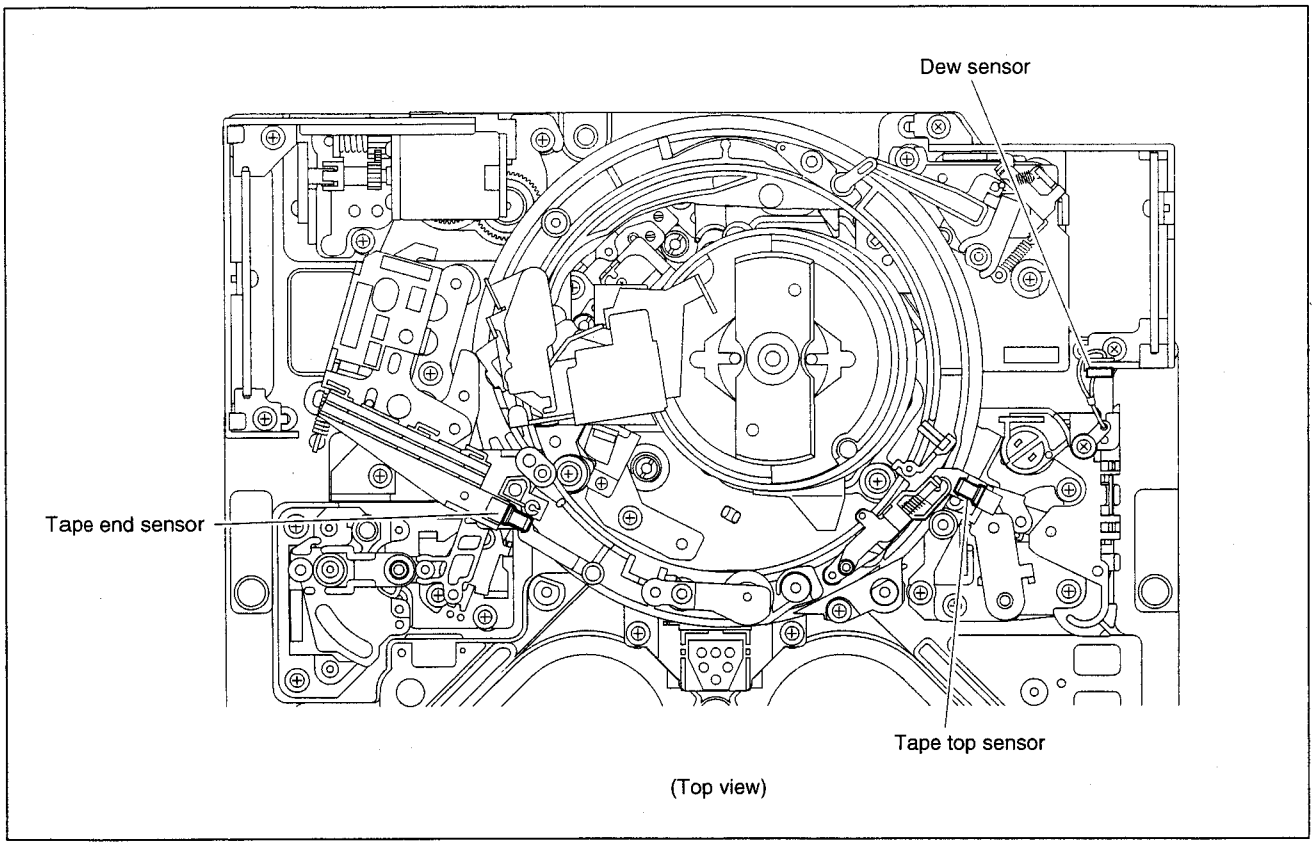
② When a screwdriver is moved near only the tape end sensor, the display changes from "[TEnd-]" to "[TEnd*]".

③ Using a cotton swab moistened with water, touch the dew sensor gently. After 10 seconds, the display changes from "[Dew-]" to "[Dew*]".

After checking, wipe the dew sensor completely dry of water.
After wiping completely, turn on the power again.

If the above fails:

- Check the sensor.
- Check the sensor harness.
- Check the sensor input port of the CPU on the SV-205 board.



Sensor Layout

c. R2-Cassette Compartment Switch Check

Function: Displays the state of the sensor (switch) of the cassette compartment.
Refer to the next page on the position of each sensor (switch).

Operation:

(1) Without loading any cassette, enter "R2↵". The following will be displayed.

```
SV1_DIAG=>R2↵



 [InL-] [InR-] [LSize-] [Exist*] [Vert*] [UdEnd*]
0000 0000 0000
```

The following indicates the current status of the respective sensors. When the sensor is functioning, the display changes from "–" to "*".

[InL-]: Cassette-in L sensor
[InR-]: Cassette-in R sensor
[LSize]: Cassette Size sensor
[Exist-]: Cassette Exist
[Vert-]: Cassette down (2) sensor
[UdEnd-]: Cassette down (1) sensor

(2) Check the following.

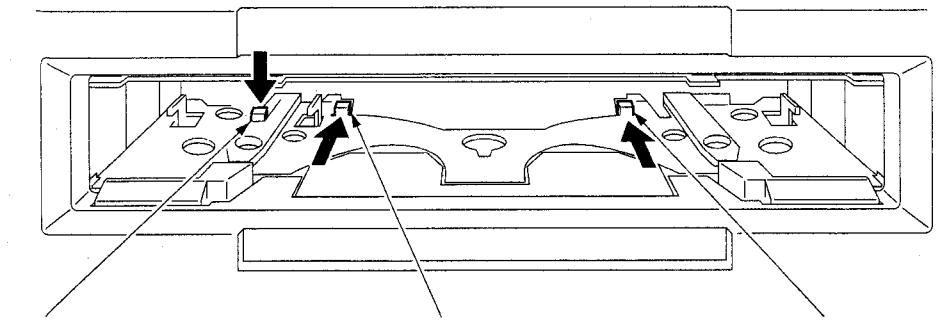
① When the Cassette-in L sensor is pressed, the display changes from "[InL-]" to "[InL*]".
② When the Cassette-in R sensor is pressed, the display changes from "[InR-]" to "[InR*]".
③ When the Cassette Size sensor is pressed, the display changes from "[LSize-]" to "[LSize*]".

(3) To end, enter " : ".

If the above fails:

- Check the corresponding sensor on the PC-70 board.
- Check the sensor input port of the CPU on the SV-205 board.

Push up cassette window inside. Press switches in arrow direction.

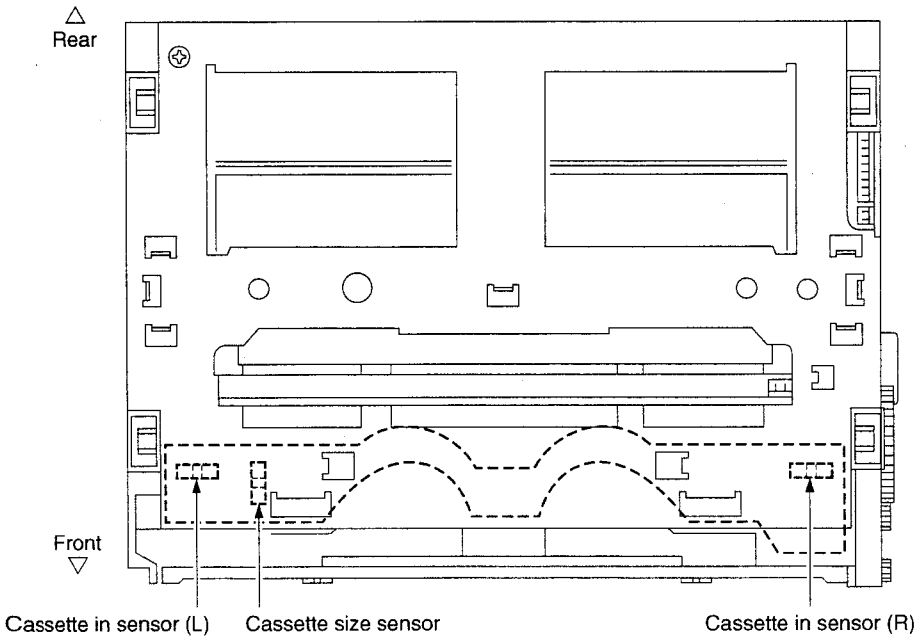


SW3:
L cassette detection switch
[Cassette size sensor]

SW1:
Cassette in switch 1
[Cassette in sensor (L)]

SW2:
Cassette in switch 2
[Cassette in sensor (R)]

Position of Cassette Compartment Switches



Top View of Cassette Compartment

d. R3-Cassette Switch Check

Function: Displays the state of the Cassette Tab sensor and REC Inhibit sensor (switch).
Refer to the next page on the position of each sensor.

Operation:

(1) Without loading any cassette, enter "R3↵". The following will be displayed.

```
SV1_TOP=>R3↵



[RecEnS-] [RecEnL-] [Gy/Dir-] [Metal-] [Dtf2/1-] [Id5-] [Id6-] [Id4-]
0000 0000 0000
```

The following indicates the current status of the respective sensors.
When the sensor is functioning, the display changes from "–" to "*".

[RecEnS-]: S Cassette REC Inhibit sensor
[RecEnL-]: L Cassette REC Inhibit sensor
[Gy/Dir-]: Cassette ID-1 sensor
[Metal-]: Cassette ID-2 sensor
[Dtf2/1-]: Cassette ID-3 sensor
[Id5-]: Cassette ID-5 sensor
[Id6-]: Cassette ID-6 sensor
[Id4-]: Cassette ID-4 sensor

(2) Check the following.

① When the S Cassette REC inhibit sensor is pressed, the display changes from "[RecEnS-]" to "[RecEnS*]".
② When the L cassette REC inhibit sensor is pressed, the display changes from "[RecEnL-]" to "[RecEnL*]".
③ When the cassette ID-3 sensor is pressed, the display changes from "[Gy/Dir-]" to "[Gy/Dir*]".
④ When the cassette ID-1 sensor is pressed, the display changes from "[Metal-]" to "[Metal*]".
⑤ When the cassette ID-2 sensor is pressed, the display changes from "[Dtf2/1-]" to "[Dtf2/1*]".
⑥ When the cassette ID-4 sensor is pressed, the display changes from "[Id4-]" to "[Id4*]".
⑦ When the cassette ID-5 sensor is pressed, the display changes from "[Id5-]" to "[Id5*]".
⑧ When the cassette ID-6 sensor is pressed, the display changes from "[Id6-]" to "[Id6*]".

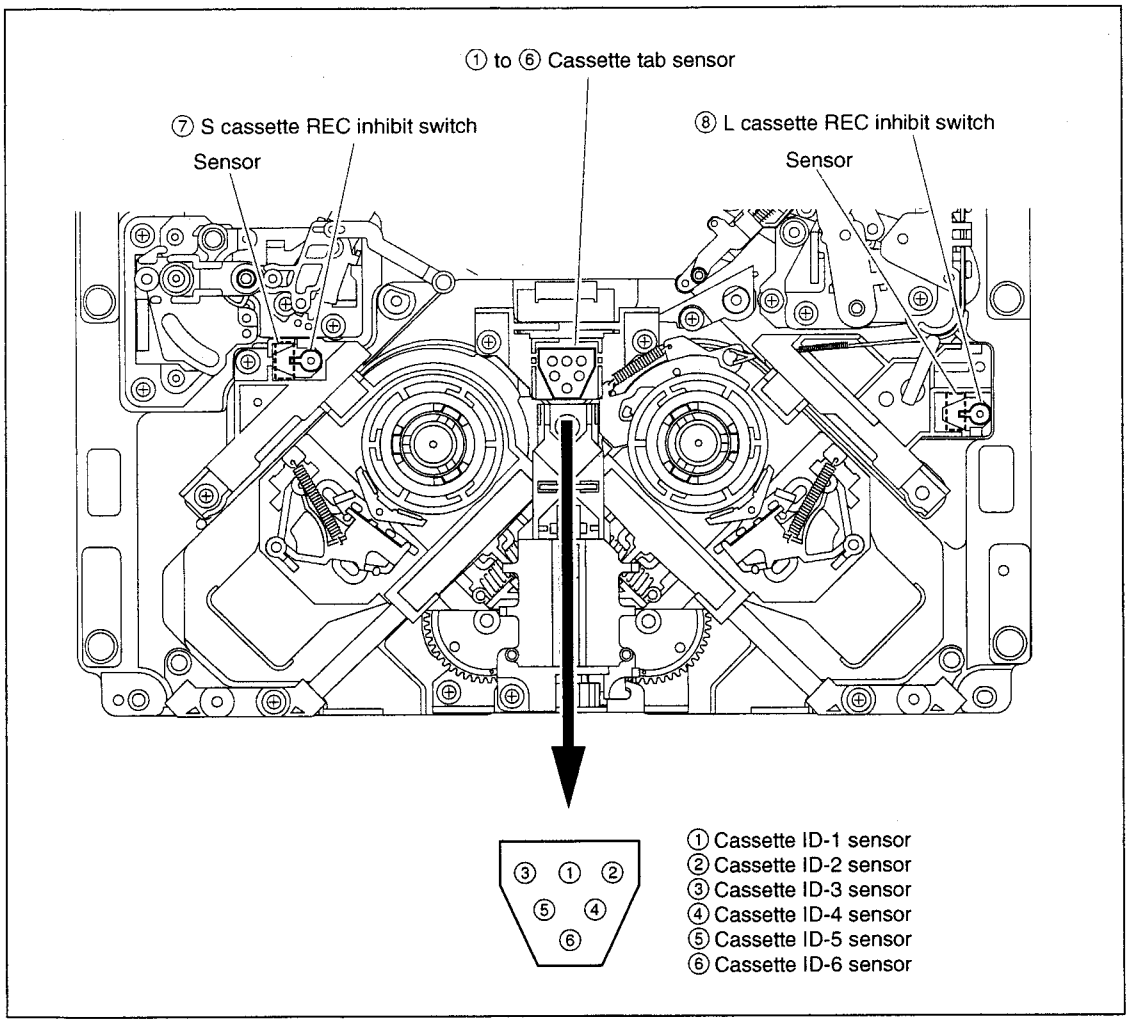
If the above fails:

When the cassette tab sensors (① to ⑥) fail

- Check the corresponding sensor on the PTC-59 board.
- Check the sensor input port of the CPU on the SV-205 board.

When the REC Inhibit sensors S and L fail

- Check the corresponding sensor on the SV-205 board.


① to ⑥ Cassette tab sensor
⑦ S cassette REC inhibit switch
Sensor
⑧ L cassette REC inhibit switch
Sensor
① Cassette ID-1 sensor
② Cassette ID-2 sensor
③ Cassette ID-3 sensor
④ Cassette ID-4 sensor
⑤ Cassette ID-5 sensor
⑥ Cassette ID-6 sensor

Positions of Sensor Switches

e. CH00-Tape Run Check

Function: Checks whether the tape runs.

Operation:

(1) Load the DTF-2 cassette and then enter "CH00↵". The tape running check mode is set and the following are displayed.

```
SV1_DIAG=>CH00↵
CH00:REW/REV/FWD/FF/STILL
H:REW/J:REV/K:FWD/L:FF/;:STILL/':':EXIT

SV1_HJKL;:=>
```

By entering the H, J, K, L and ";" keys, the tape runs at the speed shown below.

H: Rewind
J: Reverse
K: Forward
L: Fast Forward
" ; ": Still
" : ": Exits the tape running check mode.

(2) Check the following.

① Check that when the H key is pressed, the pinch solenoid is turned OFF and the tape runs at high speed in the reverse direction.
② Check that when the J key is pressed, the pinch solenoid is turned ON and the tape runs at about ×10 speed in the reverse direction.
③ Check that when the K key is pressed, the pinch solenoid is turned ON and the tape runs at about ×10 speed in the forward direction.
④ Check that when the L key is pressed, the pinch solenoid is turned OFF and the tape runs at high speed in the forward direction.
⑤ Check that when the " ; " key is pressed, the tape stops.

(3) To end, enter " : ".

If the above fails:

- Execute DIAG ALL CHECK.

f. CH01-Threading Motor Check

Function: Checks the threading motor function.
Refer to the next page on the position of each part.

Operation:

(1) Without loading any cassette, enter "CH01 ↵". The following will be displayed.

```
SV1_DIAG=>CH01↵
CH01:Threading
J:Unthread/K:Thread/;:Off/':':EXIT
SV1_HJKL;:=>


[TTop-] [TEnd-] [Dew-] [Unth*] [Thre-] [SftL*] [SftS-]
0000 0000 0000
```

Entering J, K or " ; " executes the threading operations shown below.

J: Unthreading
K: Threading
" ; ": Operations stop
" : ": Exits the threading test mode.

The following indicates the current status of the respective sensors.
When the sensor is functioning, the display changes from "–" to "*".

[Ttop-]: Tape Top sensor
[Tend-]: Tape End sensor
[Dew-]: Dew sensor
[Unth-]: Unthread End sensor
[Thre]: Thread End sensor
[SftL-]: Reel L Position sensor
[SftS-]: Reel S Position sensor

(2) Check the following.

① When the J key is pressed, the threading ring rotates in the clockwise direction, then stops at the unthreading end state, and the display changes from "[Unth-]" to [Unth*].
② When the K key is pressed, the threading ring rotates in the counterclockwise direction, then stops at the threading end state, and the display changes from "[Thre-]" to [Thre*].

(3) To end, enter " : ".

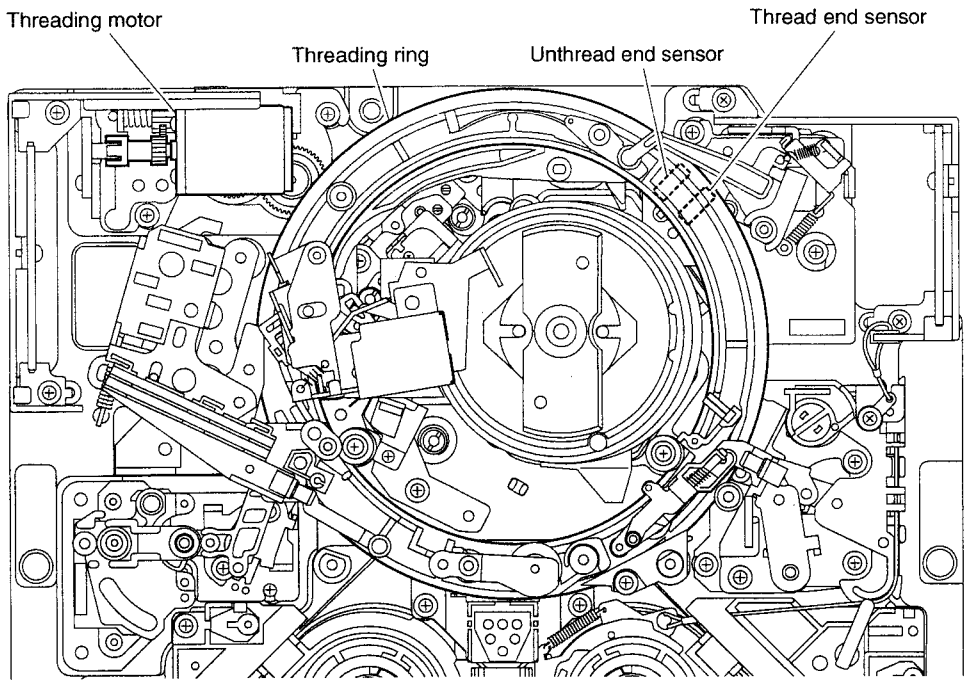
When the above fails:

When the threading ring operations are faulty

- Check mechanical faults.
- Check the threading motor drive circuit (SV-205 board).
- Check the threading motor.

If the threading state and sensor display do not match

- Check the Thread End sensor/Unthread End sensor (TR-119 board).
- Check the sensor input port of the CPU on the SV-205 board.


Threading motor
Threading ring
Unthread end sensor
Thread end sensor

<Top view>

g. CH02-Reel Shift Motor Check

Function: Checks the reel shift motor function.

Operation:

(1) Without loading any cassette, enter "CH02↵". The reel shift test mode is entered and the following will be displayed.

```
SV1_DIAG=>CH02↵
CH02:ReelPositioning
J:S->L/K:L->S/;:Off/':':EXIT
SV1_HJKL;:=>


[TTop-] [TEnd-] [Dew-] [Unth*] [Thre-] [SftL*] [SftS-]
0000 0000 0000
```

Entering J, K or " ; " executes the reel shift operations listed below.

J: Reel shift from S to L
K: Reel shift from L to S
" ; ": Operations stop
" : ": Exits the reel positioning check mode

The following indicates the current status of the respective sensors. When the sensor is functioning, the display changes from "–" to "*".

[Ttop-]: Tape Top sensor
[Tend-]: Tape End sensor
[Dew-]: Dew sensor
[Unth-]: Unthread End sensor
[Thre-]: Thread End sensor
[SftL-]: Reel L Position sensor
[SftS-]: Reel S Position sensor

(2) Check the following:

① When the J key is pressed, the reel tables move and stop at the L position.
② Check that the display changes from "[SftL-]" to "[SftL*]".
③ When the K key is pressed, the reel tables move and stop at the S position.
④ Check that the display changes from "[SftS-]" to "[SftS*]".

(3) To end, enter " : ".

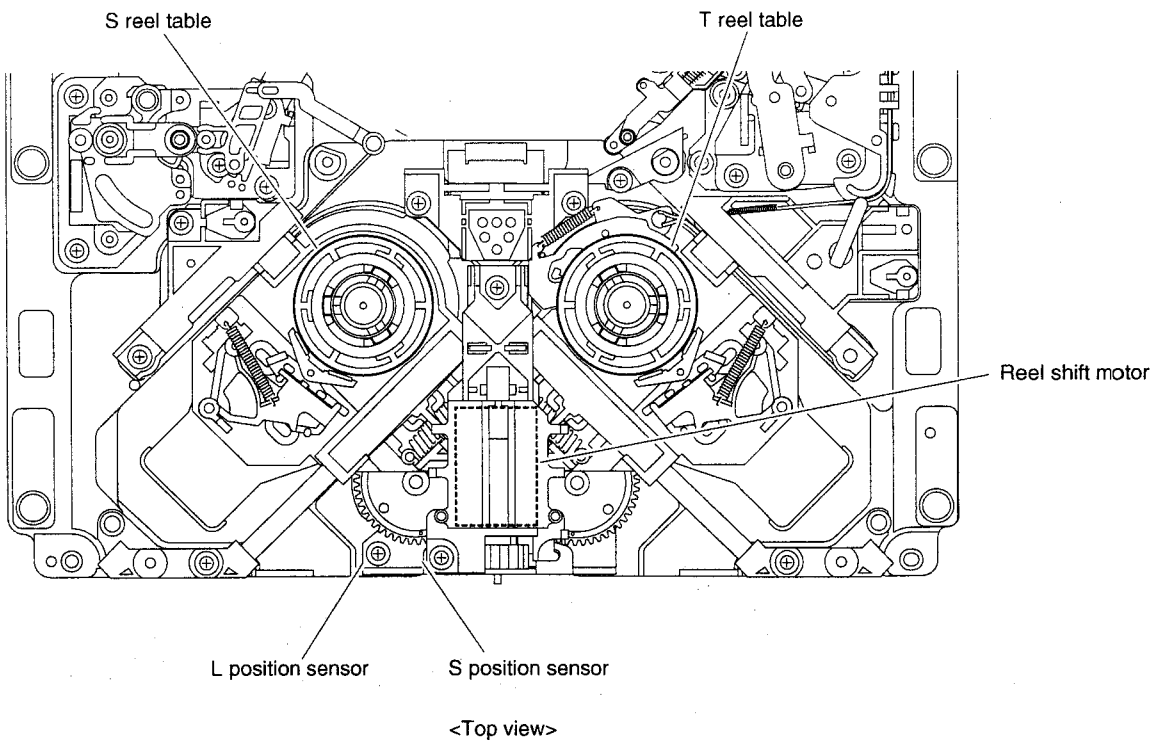
When the above fails:

When the reel table operations are faulty

- Check mechanical faults.
- Check the reel shift motor drive circuit (SV-205 board).
- Check the reel shift motor.

If the reel table position and sensor display do not match

- Check the S position sensor and L position sensor (SV-205 board).
- Check the sensor input port of the CPU on the SV-205 board.


S reel table
T reel table
Reel shift motor
L position sensor
S position sensor

<Top view>

h. CH03-Cassette Compartment Motor Check

Function: Checks the operations of the cassette compartment.

Operations:

(1) Without loading anycassette, enter "CH03 ↵". The cassette compartment motor check mode is entered and the following will be displayed.

```
SV1_DIAG=>CH03↵
CH03:CassetteCompartment
J:Up/K:Down/;:Off/':':EXIT
SV1_HJKL;:=>

[InL*] [InR*] [LSize-] [Exist-] [Vert*] [UdEnd*]
0000 0000 0000
```

Entering J, K or " ; " executes the operations of the cassette compartment as listed below.

J: Cassette Compartment-up-end
K: Cassette Compartment-down-end
" ; ": Operations stop
" : ": Exits the cassette compartment test mode

The following indicates the current status of the respective sensors.
When the sensor is functioning, the display changes from "–" to "*".

[InL-]: Cassette-in L sensor
[InR-]: Cassette-in R sensor
[LSize-]: Cassette Size sensor
[Exist-]: Cassette Exist
[Vert-]: Cassette down (2) sensor
[UdEnd-]: Cassette down (1) sensor

The position of the cassette compartment is indicated by the [Vert-] and [UdEnd-] sensors. The following are displayed for the respective cassette compartment positions.

UpEnd: [Vert-] [UdEnd*]
Horizon: [Vert-] [UdEnd-]
Vertical: [Vert*] [UdEnd-]
DownEnd: [Vert*] [UdEnd*]

(2) Check the following.

① When the J key is pressed, the cassette compartment rises, and the sensor display changes in the order of "DownEnd" → "Horizon" → "Vertical" → "UpEnd".

② When the K key is pressed, the cassette compartment descends, and the sensor display changes in the order of "UpEnd" → "Vertical" → "Horizon" → "DownEnd".

(3) To end, enter " : ".

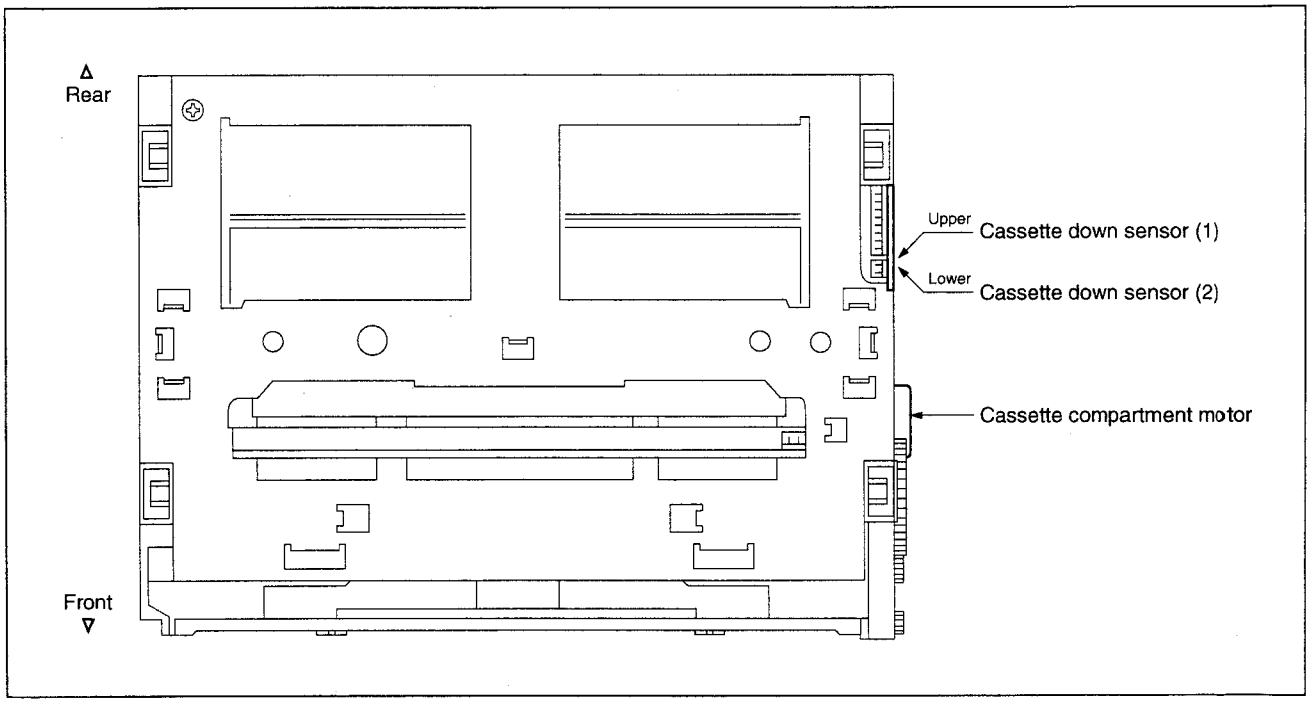
When the above fails:

When the operations of the compartment are faulty

- Check mechanical faults.
- Check the cassette compartment motor drive circuit (SV-205 board).
- Check the cassette compartment motor.

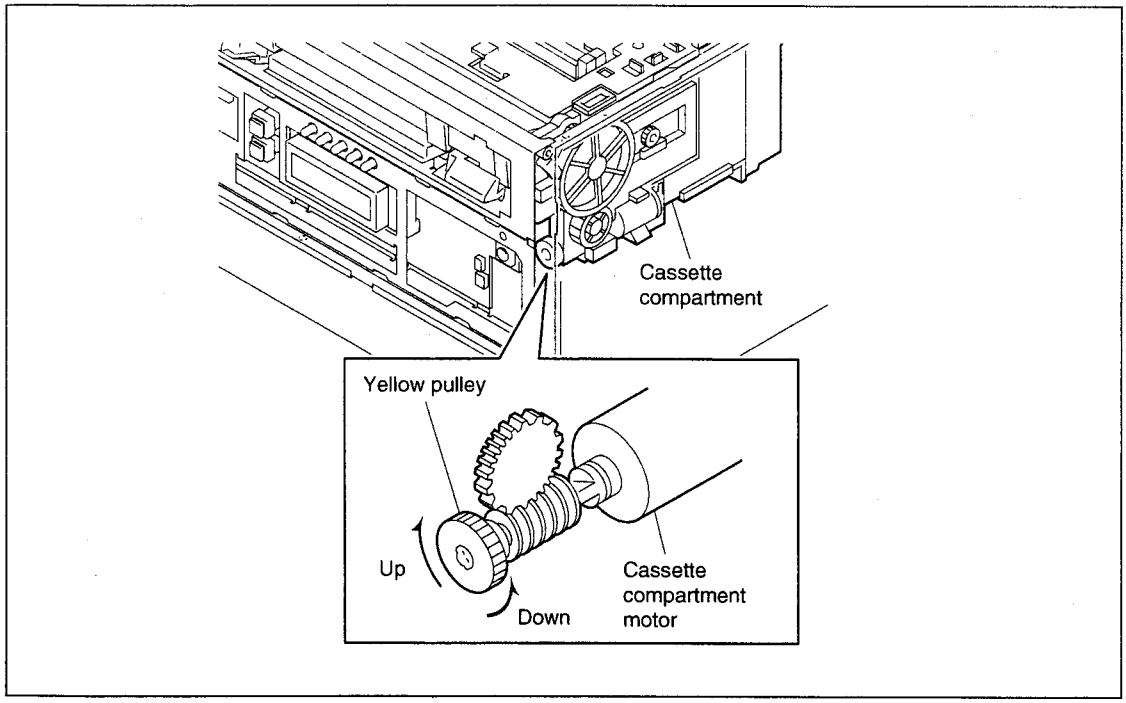
If the compartment position and sensor display do not match even though the compartment is operating normally.

- Check the Cassette down sensor (CL-29 board).
- Check the sensor input port of the CPU on the SV-205 board.



Top View of Cassette Compartment

Moving the compartment manually
The compartment moves up and down when the yellow pulley shown in the figure is rotated.
To move up, rotate the yellow pulley in the clockwise direction.



i. CH05-Pinch Roller and Cleaning Roller Solenoid Check

Function: Checks the functions of the pinch solenoid and cleaning roller.

Operations:

(1) Without loading any cassette, enter "CH05↵". The cleaning roller and pinch roller operation check mode is entered and the following will be displayed.

```
SV1_DIAG=>CH05↵
CH05:CleaningRoller, PinchRoller
H:Clean/J:EmClean/K:Pinch/L:Thread/;:Off/':':EXIT

SV1_HJKL;:=>
0000 0000 0000
```

Entering H, J, K, L or " ; " executes the operations of the cleaning roller and pinch roller listed below.
* Protection operations are performed after a certain period of time, so that the Cleaning Roller ON-to-OFF operation is stopped.

H: Repeats Normal Cleaning Roller ON to OFF
J: Repeats Emergency Cleaning Roller ON to OFF
K: Pinch Roller ON
L: Thread
" ; ": Operations stop (Pinch OFF)
" : ": Exits the cleaning roller and pinch roller operation check mode.

(2) Check the following.

① Check that when the H key is pressed, the normal cleaning solenoid (top)is activated, the cleaning roller touches the drum and then moves away.
② Check that when the J key is pressed the emergency cleaning solenoid (bottom) is activated, the cleaning roller touches the drum and then moves away.
③ Check that when the L key is pressed to set the threading state and then the K key is pressed, the pinch lever approaches the pinch roller, and a slapping sound is produced.
④ Check that when the " ; " key is pressed, the pinch lever moves away from the pinch roller side and a slapping sound is produced.

(3) To end, enter " : ".

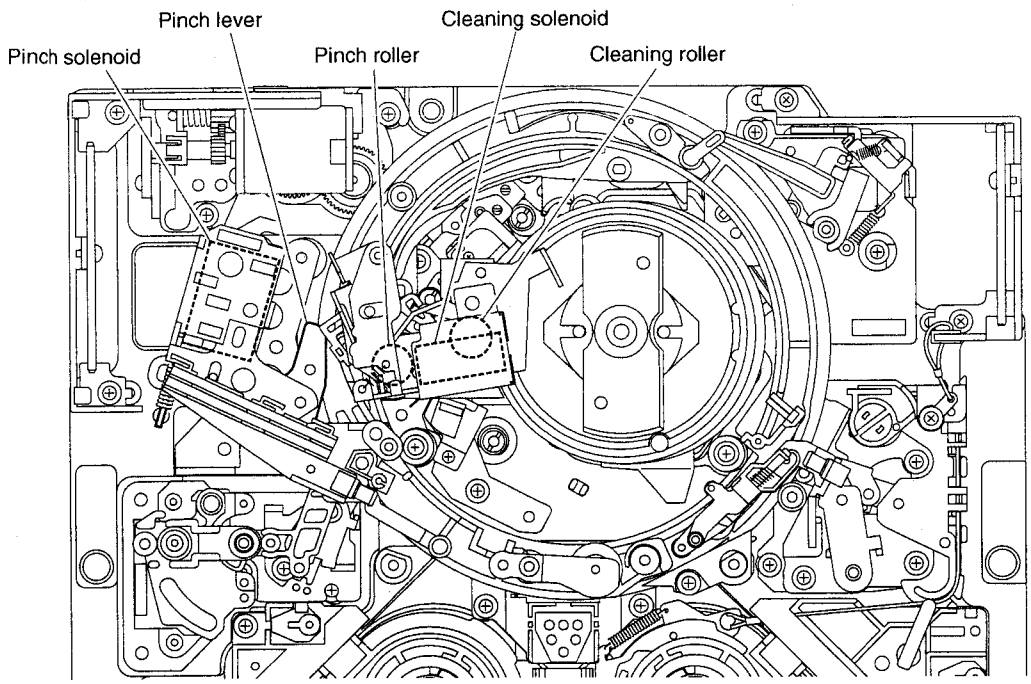
When the above fails:

When the operations of the cleaning roller are faulty

- Check mechanical faults.
- Check the cleaning roller solenoid drive circuit (HN-268 board).
- Check the cleaning solenoid.

When the pinch roller does not function

- Check the pinch solenoid circuit (HN-268 board).
- Check the pinch solenoid.


Pinch lever
Cleaning solenoid
Pinch solenoid
Pinch roller
Cleaning roller

<Top view>

j. CH06-Capstan Motor Check

Function: Checks the functions of the capstan.

Operation:

(1) Without loading any cassette, enter "CH06↵". The capstan operation check mode is entered and the following will be displayed.

```
SV1_DIAG=>CH06↵
CH06:Capstan
H:RevMax/J:Rev1x/K:Fwd1x/L:FwdMax/;:Still/':':EXIT
SV1_HJKL;:=>


0000 0000 0000
```

By entering the H, J, K, L or " ; " key, the capstan motor will operate at the speed listed below.

H: Capstan reverse maximum speed
J: Reverse x1 speed
K: Forward x1 speed
L: Capstan forward maximum speed
" ; ": Stop
" : ": Exits the capstan operation check mode.

(2) Check the following.
① Check that when the J key is pressed, the capstan runs in the reverse direction at constant speed.
② Check that when the K key is pressed, the capstan runs in the forward direction at constant speed.

(3) To end the check, enter " : ".

When the above fail:

- Check the capstan motor drive circuit (SV-205 board).
- Check the capstan FG output.
- Check the capstan motor FG amplifier circuit.

k. CH07-S, T Reel Motor Check

Function: Checks the functions of the S and T reel motors.

Operation:

(1) Without loading any cassette, enter "CH07↵". The capstan operation check mode is entered and following will be displayed.

```
SV1_DIAG=>CH07↵
CH07:Reel&Brake
H:SRev/J:SFwd/K:TRev/L:TFwd/;:Stop/':':EXIT
SV1_HJKL;:=>


0000 0000 0000
```

Entering H, J, K, L or " ; " key causes the reel to rotate at the speed listed below.

H: S reel reverse x1 speed
J: S reel forward x1 speed
K: T reel reverse x1 speed
L: T reel forward x1 speed
" ; ": Stop
" : ": Exits the reel operation check mode.

(2) Check the following.

① Check that when the H key is pressed, after the S reel brake is released, the S reel rotates in the clockwise direction at constant speed.
② Check that when the " ; " key is pressed, the S reel stops and the S reel brake is set.
③ Check that when the J key is pressed, after the reel brake is released, the S reel rotates in the counter-clockwise direction at constant speed.
④ Check that when the K key is pressed, after the T reel brake is released, the T reel rotates in the clockwise direction at constant speed.
⑤ Check that when the " ; " key is pressed, the T reel stops and the T reel brake is set.
⑥ Check that when the L key is entered, after the reel brake is released, the T reel rotates in the counter-clockwise direction at constant speed.

(3) To end the check, enter " : ".

When the above fails:

When the operations of the S reel are faulty
- Check the S reel motor drive circuit (SV-205 board).
- Check the S reel motor.

When the S reel rotational speed is not constant
- Execute the SV ALL check command (SV1B).
- Check the output from the S reel FG sensor.
- Check the S reel FG amplifier circuit (SV-205 board).

When the operations of the S reel brake are faulty
- Check the S reel brake solenoid.

When the operations of the T reel are faulty
- Check the T reel motor drive circuit (SV-205 board).
- Check the T reel motor.

When the T reel rotational speed is not constant
- Execute the SV ALL check command (SV1B).
- Check the output from the T reel FG sensor.
- Check the T reel FG amplifier circuit (SV-205 board).

When the operations of the T reel brake are faulty
- Check the T reel brake solenoid.

I. CH08-Drum Motor Check

Function: Checks the functions of the drum motor.

Operation:

(1) Without loading anycassette, enter "CH08↵". The drum operation check mode is entered and the following will be displayed.

```
SV1_DIAG=>CH08↵
CH08:Drum
[Mode] [Lock] [Time]
H:105/J:52.5/K:26.25/L:/;:Stop/':':EXIT
SV1_HJKL;:=>
AAXX  BBXX CCCC
```

Entering H, J, K or " ; " key causes the drum to rotate at the speed listed below.

H: Drum rotation speed 105 Hz (DTF 1 mode)
J: Drum rotation speed 52.5 Hz (DTF 2 mode)
K: Drum rotation speed 26.25 Hz (factory use), Not a fault when it does not lock.
" ; ": Stop
" : ": Exits the drum operation check mode

AAXX, BBXX and CCCC indicates the current status of the drum motor.

AAXX: Drum mode
AA = 0: Stop
1: Rotates at 52.5 Hz
2: Rotates at 105 Hz
3: Rotates at 26.25 Hz
BBXX: Drum Lock
BB = 0: Not lock
1: Locks
CCCC: Time until drum locks

(2) Check the following.

① Check that when the H key is pressed, the drum rotates at 105 Hz, and after 5 seconds, "02XX 01XX CCCC" is displayed.

② Check that when the J key is pressed, the drum rotates at 52.5 Hz, and after 5 seconds, "01XX 01XX CCCC" is displayed.

When the above fails:

- Check mechanical faults of the drum.
- Check the drum motor drive circuit (SV-205 board).
- Check the drum motor.
- Check the drum FG output and drum PG output.
- Check the drum FG amplifier circuit (SV-205 board).
- Check the drum PG amplifier circuit (SV-205 board).

m. SV1B-SV ALL CHECK

Function: Executes the following checks and adjustments automatically.
S reel FG automatic adjustment → T reel FG automatic adjustment → Capstan FG automatic adjustment → S tension sensor amplifier automatic adjustment → T tension sensor amplifier automatic adjustment → S reel terminal voltage check → T reel terminal voltage check → Drum jitter check

Operation:

(1) Without loading any cassette, enter "SV1B↵". The all check command will be executed, and the following will be displayed after each check ends.

```
SV1_DIAG=>SV1B↵

Diag (1B) Started!
SReel Adjust Complete!
TReel Adjust Complete!
Capstan Adjust Complete!
STension Adjust Complete!
TTension Adjust Complete!
SReelVolt=XXXX
TReelVolt=XXXX
Data=XXXX
Drum Jitter OK!
SaveOK!
AAAA 0000 0000
```

AAAA: Indicates the status of all check
0000: Standby for automatic adjustment
0001: Currently executing automatic adjustment
0002: Automatic adjustment ended normally

When others are displayed, it means that error was detected during the all check, and the check was ended.
The lower two digits of the self-diagnosis result code is the error. Refer to Section 5-13-6.
For details on the countermeasures for errors, refer to the code table.
The SV adjustment value will be updated if the check ends normally, but will not be updated if the check ended abnormally.

n. SV18-ATF Function Check

Function: Executes the ATF auto-tracking function automatic check.

Operation:

(1) Remove the front panel. Refer to Section 1-1.

(2) Turn the power ON again and then open the DIAG menu of SV.
Press the switches S100 (STOP), S113 (LEFT) and S116 (RIGHT) simultaneously so that the line mode is set.

(3) Load the alignment cassette YR5-1A (DTF-2), and The LCD displays as shown below.

```
IDR:XXXXXX    > STOP
GY2  |  27P   |  DTF2
```

(4) Press the S103 (FWD) switch, and the tape will start running.
If XXXXXX on the LCD screen is 280000 or more, press the REW button to rewind the tape. After the tape is rewound, press the FWD button.

(5) Enter "S03↵" and confirm that the tape stops. Enter "SV18↵", and the ATF function check will start and the following will be displayed.

```
SV1_TOP =>SV18↵
AtfLong Starts.
002E, 000B, FFFF, 0001, 0001
003A, 000E, FFFF, 0000, 0002
0046, 0011, FFFF, 0000, 0003
0052, 0014, FFFF, 0000, 0004
005E, 0017, FFFF, 0000, 0005
006A, 001A, FFFF, 0000, 0006
0076, 001D, FFFF, 0000, 0007
0082, 0020, FFFF, 0000, 0008
008E, 0023, FFFF, 0000, 0009
009A, 0026, FFFF, 0000, 000A
00A6, 0029, FFFE, 0001, 000B
Time=0103
ATF_OK!
AAAA 0000 0000
```

AAAA: Indicates the status of all check as listed below.
0000: Standby for automatic adjustment
0001: Currently executing automatic adjustment
0002: Automatic adjustment ended normally
00C1: ATF operation check error
00C2: ATF operation check ended in time-out
00C3: Abnormal ATF signal relation
00C4: Excessive tracking control value in servo lock state
00C8: Set into unexpected state during ATF operation check
When the check ends normally, "ATF OK" will be displayed.
Tracking information is also displayed for debugging during the check. This display can be ignored.

Note

Turn the power off and then on before beginning the ATF check.

When the above fails:

- Check the ATF detection circuit (DPR-160 board).
- Check the auto-tracking control circuit (SV-205 board).

o. SV19-SAT Function Check

Function: Executes the SAT auto-tracking function automatic check.

Operation:

(1) Remove the front panel. Refer to Section 1-1.

(2) Turn the power ON again and then open the DIAG menu of SV.
Press the switches S100 (STOP), S113 (LEFT) and S116 (RIGHT) simultaneously so that the line mode is set.

(3) Load the alignment cassette YR5-1A (DTF-1), and The LCD displays as shown below.

```
IDR:XXXXXX    > STOP
GY2  |  27P   |  DTF1
```

(4) Press the S103 (FWD) switch, and the tape will start running.
If XXXXXX on the LCD screen is 80000 or more, press the REW button to rewind the tape. After the tape is rewound, press the FWD button.

(5) Enter "S03↵" and confirm that the tape stops. Enter "SV19↵", and the SAT function check will start and the following will be displayed.

```
SV1_TOP =>SV19↵
SatLong Starts.
0001, 793C, 0000
StartPoint Found.
0002, 78B4, 0000
Time=0112
SatLong Ends.
SatShort Starts.
0000, 7786, 0001
0000, 7A44, 0002
0000, 797B, 0003
0001, 74F9, 0002
SAT_OK!
AAAA 0000 0000
```

AAAA: Indicates the status of theSAT check as listed below.
0000: Standby for automatic adjustment
0001: Currently executing automatic adjustment
0002: Automatic adjustment ended normally
00C1: SAT operation check error
00C2: SAT operation check ended in time-out
00C3: Abnormal relation between SAT signal and tracking control
00C4: SAT signal exceeded the measured value
00C8: Set into unexpected state during SAT operation check
When the check ends normally, "SAT OK" will be displayed.
Tracking information is also displayed for debugging during the check. This display can be ignored.

Note

Turn the power off and then on before beginning the SAT check.

When the above fails:

- Check the SAT detection circuit (DPR-160 board).
- Check the auto-tracking control circuit (SV-205 board).

p. HM-Hours Meter

Function: Displays the hours meter.

Operation:

(1) Enter "HM ↵". The following will be displayed:

```
SV1_TOP=>HM↵
Ope0=0160
Drm0=0043
Drm1=0043
Drm2=0010
Thr0=001000
Thr1=001000
Rol0=011600
Rol1=011600
SV1_TOP=>
```

Ope0: Operation hour (Unit: Hour)
Drm0: Drum rotation time (Unit: Hour)
Drm1: Drum rotation time (Unit: Hour)
Drm2: Drum rotation time (Unit: Hour)
Thr0: Number of threadings
Thr1: Number of threadings
Rol0: Number of times the cleaning roller was hit
Rol1: Number of times the cleaning roller was hit

5-4-14. IF CPU

Function: Used for entering the DIAG mode of the IF CPU.
Operation: Enter "14↵".

After selecting this item, the DIAG menu of the IF CPU will be automatically displayed.

```
DIAG=> 14↵
+===[ IF Diagnostic menu ]==============================================+
|                                                                       |
|  quit:Quit tool                        help:Display Help menu         |
|                                                                       |
|   1: All check                                                        |
|                                                                       |
|  << STATUS >>                         << CHECK >>                     |
|  11: ROM version                      21: Memory check                |
|  12: Dip switch                                                       |
|                                                                       |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

IF_DIAG=>
```

IF CPU Execution Screen

1. Quit Tool

Function: Exits the DIAG mode of the IF CPU.
Operation: Enter "quit↵".

2. Display Help Menu

Function: Displays the menu list of the DIAG mode of the IF CPU.

Operation: Enter "help ↵".

```
IF_DIAG=> help↵

+===[ IF Diagnostic menu ]=================================================+
|                                                                           |
|  quit: Quit tool                        help: Display Help menu           |
|                                                                           |
|   1: All check                                                            |
|                                                                           |
|  << STATUS >>                          << CHECK >>                        |
|  11: ROM version                       21: Memory check                   |
|  12: Dip switch                                                           |
|                                                                           |
+====================================[ Copyright (c) 2000 Sony Corp. ]===+

IF_DIAG=>
```

Display Help Menu Execution Screen

3. All Check (IF CPU)

Function: Executes all IF check items automatically.
Operation: Enter "1↵".

The following checks are performed:

- SRAM check
- NVRAM check
- DPRAM check
- SDRAM check

If errors occur during any of the checks, the error is displayed and the check is terminated.
When all checks end normally, a message indicating normal completion will be displayed. If any one check results in error, a message indicating abnormal completion will be displayed. As for errors, refer to Section 5-13-6.

```
IF_DIAG=>1↵
<< IF CPU All check >>

IF All check ***** OK (Error Code 00000000)


IF_DIAG=>
```

All Check (IF CPU) Execution Screen

4. ROM Version (IF CPU)

Function: Displays the IF firmware version.
Operation: Enter "11↵".

```
IF_DIAG=>11↵
***[ ROM VERSION DISPLAY (IF) ]***
Ver00.55.53


IF_DIAG=>
```

ROM Version (IF CPU) Execution Screen

5. Dip SW (IF CPU)

Function: Displays the Dip Switch information of the IF board.
Operation: Enter "12↵".

```
IF_DIAG=>12↵

**** [DIP SWITCH DISPLAY] ****
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| SW Name | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| IF (S2) | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+

IF_DIAG=>
```

Dip SW (IF CPU) Execution Board

6. Memory Check (IF CPU)

Function: Checks each memory.
Operation: Enter "21↵".

When the check ends normally, "OK" will be displayed.
If errors occur, "ERROR" will be displayed.
As for errors, refer to Section 5-13-6.

```
IF_DIAG=>21↵
<< IF CPU Memory check >>

IF Memory check ***** OK (Error Code 00000000)


IF_DIAG=>
```

Memory Check (IF CPU) Execution Screen

5-4-15. DSP CPU

Function: Used for entering the DIAG mode of the DSP CPU.
Operation: Enter "15↵".

After selecting this item, the DIAG menu of the DSP CPU will be automatically displayed.

```
DIAG=> 15↵
+===[ DSP Diagnostic menu ]=============================================+
|                                                                       |
|  quit: Quit tool                        help: Display Help menu       |
|                                                                       |
|   1: All check                                                        |
|                                                                       |
|  << STATUS >>                          << CHECK >>                    |
|  11: ROM version                       21: LED check                  |
|  12: Dip switch                        22: Key check                  |
|                                        23: LCD check                  |
|                                        24: Buzzer check               |
|                                        25: Telefile check             |
|                                                                       |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

DSP_DIAG=>
```

DSP CPU Execution Screen

1. Quit Tool

Function: Exits the DIAG mode of the DSP CPU.
Operation: Enter "quit↵".

2. Display Help Menu

Function: Displays the menu list of the DIAG mode of the DSP CPU.
Operation: Enter "help ↵".

```
DSP_DIAG=>help ↵
+===[ DSP Diagnostic menu ]=============================================+
|                                                                       |
|  quit: Quit tool                        help: Display Help menu       |
|                                                                       |
|   1: All check                                                        |
|                                                                       |
|  << STATUS >>                          << CHECK >>                    |
|  11: ROM version                       21: LED check                  |
|  12: Dip switch                        22: Key check                  |
|                                        23: LCD check                  |
|                                        24: Buzzer check               |
|                                        25: Telefile check             |
|                                                                       |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

DSP_DIAG=>
```

Display Help Menu Execution Screen

3. All Check (DSP CPU)

Function: Executes all automatically practicable checks of DSP check items.
Operation: Enter "1 ↵".

The following checks are performed:
- Key check (checks that the state is OFF)
- Tele-File check

When all checks end normally, a message indicating normal completion will be displayed. If any one check results in error, a message indicating abnormal completion will be displayed.

Note

Do not press any button nor open the front door of the cassette compartment during a check as the check may end abnormally. As for errors, refer to Section 5-13-6.

```
DSP_DIAG=>1 ↵
<< DSP CPU All check >>
DSP All check ***** OK (Error Code 00000000)


DSP_DIAG=>
```

All Check (DSP CPU) Execution Screen

4. ROM Version (DSP CPU)

Function: Displays the firmware version of the DSP.
Operation: Enter "11 ↵".

```
DSP_DIAG=>11 ↵
***[ ROM VERSION DISPLAY (DSP) ]***
Ver01.00.00

DSP_DIAG=>
```

ROM Version (DSP CPU) Execution Screen

5. Dip SW (DSP CPU)

Function: Displays Dip Switch information on the DSP board.
Operation: Enter "12 ↵".

```
DSP_DIAG=>12 ↵

**** [DIP SWITCH DISPLAY] ****
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| SW Name |  1  |  2  |  3  |  4  |  5  |  6  |  7  |  8  |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+
| DSP (S2) | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
+---------+-----+-----+-----+-----+-----+-----+-----+-----+

DSP_DIAG=>
```

Dip SW (DSP CPU) Execution Screen

6. LED Check (DSP CPU)

Function: Lights up all LEDs.
Operation: Enter "21 ↵".

When the check completes, "Finish" will be displayed, all LEDs will be turned off once and returned to the LED state before the check was performed. As for errors, refer to Section 5-13-6.

```
DSP_DIAG=>21 ↵
<< DSP CPU LED check >>

DSP LED check ***** Finish (Error Code 00000000)


DSP_DIAG=>
```

LED Check (DSP CPU) Execution Screen

7. Key Check (DSP CPU)

Function: Used for performing the button check of the front panel.
Operation: Enter "22↵".

Press the button to be checked until a click sound is produced. The name of the button pressed will be displayed on the LCD.
End the check by pressing the [SELECT] and [ESC] buttons simultaneously.When the check completes, "Finish" will be displayed.
As for errors, refer to Section 5-13-6.

```
DSP_DIAG=>22↵
<< DSP CPU Key check >>

DSP Key check ***** Finish (Error Code 00000000)


DSP_DIAG=>
```

Key Check (DSP CPU) Execution Screen

8. LCD Check (DSP CPU)

Function: Checks the LCD.
Operation: Enter "23↵".

The test pattern "LCD-TEST-PATTERN" will be displayed on the LCD screen.
When the check completes, "Finish" will be displayed.
As for errors, refer to Section 5-13-6.

```
DSP_DIAG=>23↵
<< DSP CPU LCD check >>

DSP LCD check ***** Finish (Error Code 00000000)


DSP_DIAG=>
```

LCD Check (DSP CPU) Execution Screen

9. Buzzer Check (DSP CPU)

Function: Checks the buzzer.
Operation: Enter "24↵".

A buzzer is sounded once.
When the check completes, "Finish" will be displayed.
As for errors, refer to Section 5-13-6.

```
DSP_DIAG=>24↵
<< DSP CPU Buzzer check >>

DSP Buzzer check ***** Finish (Error Code 00000000)


DSP_DIAG=>
```

Buzzer Check (DSP CPU) Execution Screen

10. Telefile Check (DSP CPU)

Function: Checks the telefile (CCM board).
Operation: Enter "25↵".

When the check completes normally, "OK" will be displayed. If an error occurs, "ERROR" will be displayed. As for errors, refer to Section 5-13-6.

```
DSP_DIAG=>25↵
<< DSP CPU Telefile check >>

DSP Telefile check ***** OK (Error Code 00000000)


DSP_DIAG=>
```

Telefile Check (DSP CPU) Execution Screen

5-5. UPDATE Mode

This mode is used for updating the CPU firmware.
The UPDATE mode can be set by entering "UPDATE↵" from the maintenance terminal. The message "UPDATE=>" will be displayed as the prompt. Enter the command number (or command) after this prompt and press ↵ key. The command will be executed. Entering "quit↵" after this prompt terminates the UPDATE mode

Note

The UPDATE mode cannot be activated from other mode. To activate the UPDATE mode, terminate the current mode first.
After the CPU firmware is updated, the GY-8240 will be automatically reset.

5-5-1. Quit Tool

Function: Exits the UPDATE mode and returns to the maintenance mode.
Operation: Enter "quit↵".

5-5-2. Display Help Menu

Function: Displays the UPDATE mode menu.
Operation: Enter "help↵".

```
UPDATE=> help↵
+===[ Firmware update mode menu ]=========================================+
|                                                                         |
| quit : Quit tool                    help : Display Help menu            |
|                                                                         |
|   1: From maintenance port          2: From tape                        |
|                                                                         |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

UPDATE=>
```

Display Help Menu Execution Screen

5-5-3. From Maintenance Port

Function: Transfers data from the maintenance port to update the firmware.
Operation: Enter "1 ↵".

When updating is started, a message to confirm the updated state of the unit "Firmware update ready..." will be displayed. If the result displayed is "OK", a message requesting the transmission for the CPU firmware data "Sending Firmware Data" will be displayed. Send the data from this port.
After sending the data, updating starts.
If the result is "NG", it means that the unit cannot be updated, and the UPDATE prompt will be displayed again.

```
UPDATE=> 1↵

<< Firmware update from maintenance port >>

Firmware update ready.... OK

Sending firmware data.....Done.

Programing Start...
```

From Maintenance Port Execution Screen

```
UPDATE=> 1↵

<< Firmware update from maintenance port >>

Firmware update ready.... NG

UPDATE=>
```

When the Unit Cannot Update

5-5-4. From Tape

Function: Reads the data from the tape, and updates the firmware.
Operation: Enter "2↵".

This updating process is performed using a tape for updating on which the CPU firmware data is written, instead of sending the data from the maintenance port.
When updating is started, a message to confirm the updated state of the unit "Firmware update ready..." will be displayed. If the result displayed is "OK", a message requesting the loading of the tape for updating "Insert tape" will be displayed. Load the tape into the unit. Data will automatically be read from the tape, and updating starts.
When updating ends, the tape will be automatically ejected.
If the result is "NG", it means that the unit cannot be updated, and the UPDATE prompt will be displayed again.

```
UPDATE=> 2↵

<< Firmware update from tape >>
Firmware update sure? (Y:yes/N:no) => y↵

Firmware update ready.... OK
Insert tape
```

From Tape Download Execution Screen

5-6. LOG Mode

This mode is used for displaying the LOG of each CPU.
The LOG mode can be set by entering "LOG↵" from the PC. The message "LOG=>" will be displayed as the prompt.
Enter the command number (or command) after this prompt and press ↵ key. The command will be executed. Entering "quit↵" after this prompt terminates the LOG mode.

Note

The LOG mode cannot be activated from other mode. To activate the LOG mode, terminate the current mode first.

5-6-1. Quit Tool

Function: Exits the LOG mode and returns to the maintenance mode.
Operation: Enter "quit↵".

5-6-2. Display Help Menu

Function: Displays the LOG mode menu.
Operation: Enter "help↵".

```
LOG=> help↵
+===[ Log menu ]============================================================+
|                                                                            |
|  quit : Quit tool                      help   : Display Help menu          |
|  clear: Clear all log                  upload : Upload all logs            |
|  adsp : Upload all set values and logs                                     |
|                                                                            |
|  11: FMT-CPU   12: SYS-CPU   13: SV-CPU   14: IF-CPU                       |
|                                                                            |
+====================================[ Copyright (c) 2000 Sony Corp. ]===+

LOG=>
```

Display Help Menu Execution Screen

5-6-3. Clear All Logs

Function: Erases the log contents of all CPUs.
Operation: Enter "clear↵".

5-6-4. Upload All Logs

Function: Uploads the log contents of all CPUs.
Used for uploading the log contents to the PC etc.
Operation: Enter "upload↵".

5-6-5. Upload All Set Value and Logs

Function: Uploads all set values and log contents of all CPUs.
Used for uploading set values and log contents to the PC etc.
Operation: Enter "adsp↵".

5-6-6. FMT CPU

Function: Enters the LOG mode of the FMT CPU.
Operation: Enter "11↵".

After selecting this item, the LOG menu of the FMT CPU will be automatically displayed.

```
LOG=> 11↵

+--<< GY-8240 FMT LOG MENU >>-------------------------------------------+
| quit: Quit Tool                  help: display help Menu               |
| clear: Clear Log                 upload: Log Upload                    |
|                                                                        |
|                                    2: 2-Port RAM Command               |
|  3: SCSI Command Sequence          4: Other History                    |
|  5: PSC Command Sequence           6: SCSI Command Sequense(Initiator) |
|  7: Trace                          8: ISP QCmd Log                     |
|  9: IF Cmd Log                    10: DISPLAY Log                      |
| 12: Register Dump at Exception                                         |
| 97: Bus Error Counter             98: Media Error Counter              |
|                                                                        |
|                                        Copyright (c) 2000  SONY Corp.  |
+------------------------------------------------------------------------+

LOG =>
```

FMT CPU Execution Screen

1. Quit Tool
Function: Exits the LOG mode of the FMT CPU, and returns to the LOG mode of the maintenance mode.
Operation: Enter "quit↵".

2. Display Help Menu
Function: Displays the FMT CPU LOG menu.
Operation: Enter "help↵".

3. Clear Log
Function: Erases the log contents of the FMT CPU.
Operation: Enter "clear↵".

4. Log Upload
Function: Uploads all log contents of the FMT CPU.
Operation: Enter "upload↵".

5. All Log Upload
Undisclosed menu

6. 2-Port RAM Command (FMT <-> SYS)

Function: Displays the communication log between the SYS CPU and FMT CPU.

Operation: Enter "2↵".

```
LOG=> 2↵

 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>[ 2-PORT COMMAND LOG ]<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<
 <<<< Log Count :  44 >>>>
  No..BT.TIME.................STATUS..CMD..INFORMATION.....................................
   1  97 00/01/01 00:05:17.4C  [CLR - ]

   2  97 00/01/01 00:05:17.4C  [SND 00]  05 mode1[00]  mode2[00]  ID [  8201]
                               len [   44] num[   1]  rst[    0] c2rty[ 0] intry[ 3]
   3  97 00/01/01 00:05:26.90  [RCV 00]  05  ID  [ 4649] len[  44]  eod[    0] rty[ 0 0]
                                parm[00]
   4  97 00/01/01 00:05:26.90  [FRE  0]

   5  97 00/01/01 00:05:27.0B  [SND 01]  02 mode1[09]  mode2[00]  ID [10485760]
                               len [   40] num[   1]  rst[    0] c2rty[10] intry[ 3]
```

2-Port RAM Command Execution Screen

Description of Display

No:	LOG count
BT:	Number of boots
TIME:	System RTC (real-time clock value)
STATUS:	Packet status(SND: FMT → SYS, RCV: FMT ← SYS) and packet number
CMD:	SYS command transmitted/received For details, refer to the SYS command specifications
INFORMATION:	Parameter of each command

7. SCSI Command Sequence

Function: Displays the SCSI sequence log.

Operation: Enter "3↵".

```
LOG => 3↵

>>>>>>>>>>>>>>>>>>>>[ SCSI SEQUENCE LOG ]<<<<<<<<<<<<<<<<<<<<
<<<< Log Count :   7 >>>>
 No..BT.TIME.....................COUNT..COMMAND LIST.....................STAT.....
  1  97 00/01/01 00:05:00.5B       1  00 00 00 00 00 00                  CC

  2  97 00/01/01 00:05:00.5C       1  03 00 00 00 80 00                  GOOD
                                       [DATA] 70 00 06 00 00 00 00 52 00 00 00 00 29 00 00 00
  3  97 00/01/01 00:05:05.9C       1  01 00 00 00 00 00                  GOOD

  4  97 00/01/01 00:05:26.91    1000  0A 00 01 00 00 00                  GOOD
                                       [LEN] 10000
  5  97 00/01/01 00:05:58.D0       1  01 00 00 00 00 00                  GOOD

  6  97 00/01/01 00:06:15.6E      16  08 00 01 00 00 00                  GOOD
                                       [LEN] 10000
  7  97 00/01/01 00:09:57.31       1  11 03 00 00 00 00                  GOOD
```

SCSI Command Sequence Execution Screen

Description of Display

No:	LOG count
BT:	Number of boots
TIME:	System RTC (real-time clock value)
COUNT:	Command count
COMMAND LIST:	SCSI command
STAT:	Results of command

8. Other History

Function: Displays event logs

Operation: Enter "4↵".

```
LOG => 4↵
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>[ Other LOG ]<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<
<<<< Log Count :   7 >>>>
 No..BT.TIME.....................Log Detail.....................................................
  1  97 00/01/01 00:10:29.92  Load Switch ON !!

  2  97 00/01/01 00:10:50.4A  Maintenance Monitor Used
                              Command[1] fLoad[2] fActMode[0] Rsv[0]
  3  97 00/01/01 00:10:58.63  Fast Unld complete!!
                              VolNo.[   0]  FILE[     0]  BS[     1]    EOD[  8566]
  4  97 00/01/01 00:11:02.5E  Unload complete(Tele-File)

  5  97 00/01/01 00:11:15.20  DTF-2 Tape-IN

  6  97 00/01/01 00:11:31.88  Load Switch ON !!

  7  97 00/01/01 00:12:24.C8  Load Switch ON !!
```

Other History Execution Screen

Description of Display

No: LOG count
BT: Number of boots
TIME: System RTC (real-time clock value)
Log Detail: Details of operations of GY-8240

9. Serial Command Sequence

Undisclosed menu

10. Trace

Undisclosed menu

11. ISP QCmd Log

Undisclosed menu

12. IF Cmd Log

Function: Displays the communication log between the IF CPU and FMT CPU.

Operation: Enter "9↵".

```
LOG => 9↵
>>>>>>>>>>>>>>>>>>>[ IF-Cmd ]<<<<<<<<<<<<<<<<<<<<<<<< Log Count :      256        0>>>>
No..BT.TIME.....................DIR.REQ.ACK.CMD.........STAT TID LEN DATA
  1 97 00/01/01 00:12:46.46 RCV 1   0   TF-COMP     00   03  001 00
  2 97 00/01/01 00:12:46.47 SND 0   0   TF-DATA     00   03  021 00000018 01000000 00000000
  3 97 00/01/01 00:12:46.47 RCV 0   1   TF-COMP     00   03  001 00
  4 97 00/01/01 00:12:46.47 RCV 0   0   TF-COMP     00   03  001 00
  5 97 00/01/01 00:12:46.48 SND 1   0   TF-DATA     00   03  021 00000019 01000000 00000000
  6 97 00/01/01 00:12:46.49 SND 0   1   TF-DATA     00   03  021 00000019 01000000 00000000
  7 97 00/01/01 00:12:46.4A RCV 1   0   TF-COMP     00   03  001 00
  8 97 00/01/01 00:12:46.4B SND 0   0   TF-DATA     00   03  021 00000019 01000000 00000000
  9 97 00/01/01 00:12:46.4B RCV 0   1   TF-COMP     00   03  001 00
 10 97 00/01/01 00:12:46.4B RCV 0   0   TF-COMP     00   03  001 00
 11 97 00/01/01 00:12:46.4C SND 1   0   TF-DATA     00   03  021 0000001A 01000000 00000000
 12 97 00/01/01 00:12:46.4D SND 0   1   TF-DATA     00   03  021 0000001A 01000000 00000000
 13 97 00/01/01 00:12:46.4E RCV 1   0   TF-COMP     00   03  001 00
 14 97 00/01/01 00:12:46.4F SND 0   0   TF-DATA     00   03  021 0000001A 01000000 00000000
```

IF Cmd Log Execution Screen

Description of Display

No: LOG count
BT: Number of boots
TIME: System RTC (real-time clock value)
DIR: Transmitting/receiving status
REQ: Request bit value of DPRAM command area
ACK: ACK bit value of DPRAM command area
CMD: Command transmitted/received
STAT: Command status
TID: Task ID of IF CPU
LEN: Command parameter length
DATA: Command parameter

13. DISPLAY Log

Function: Displays the data output by FMT via the RS-232C

Operation: Enter "10↵".

14. Register Dump at Exception

Function: Displays the register dump when an exception occurs in the FMT CPU.

Operation: Enter "12↵".

```
LOG => 12↵
r0  :00000000  r1  :00000000  r2  :00000000  r3  :00000000
r4  :00000000  r5  :00000000  r6  :00000000  r7  :00000000
r8  :00000000  r9  :00000000  r10 :00000000  r11 :00000000
r12 :00000000  r13 :00000000  r14 :00000000  r15 :00000000
r0_b:00000000  r1_b:00000000  r2_b:00000000  r3_b:00000000
r4_b:00000000  r5_b:00000000  r6_b:00000000  r7_b:00000000
gbr :00000000  vbr :00000000  ssr :00000000  spc :00000000
sr  :00000000
```

Register Dump at Exception Execution Screen

15. Bus Error Counter

Undisclosed menu

16. Media Error Counter

Undisclosed menu

5-6-7. SYS CPU

Function: Enters the LOG mode of the SYS CPU.
Operation: Enter "12↵".

After selecting this item, the LOG menu of the SYS CPU will be automatically displayed.

```
+--<< SYS-CPU RAM LOG MENU [help] >>-----------------------------------------+
|   quit: Quit Tool              clear: clear all log                        |
|   help: display help Menu     upload: upload all log                       |
|  help2: display help Menu 2      off: log on/off set                       |
|                                                                            |
| <<< FMT >>>  <<< SYS >>>   <<< IF  >>>   <<<SYNC >>>     <<< ERATE >>>    |
| 31:2P-RAM    41:2P-RAM     51:2RAM(->IF)  61:XFER         71:ERATE+INFX    |
| 32:SNPSHT    42:HANDSHAKE  52:2RAM(<-IF)                  72:IID(service)  |
| 33:SEQUENCE  43:SV LOCK    53:HANDS(->IF)                 73:IID DSP SET   |
| 34:HANDSHAKE 44:SV STA CMD 54:HANDS(<-IF)                                  |
|              45:CTL, LTC                                                   |
|              46:SV TRACE                    Copyright (c) 2000 Sony Corp. |
+----------------------------------------------------------------------------+
(SYS-CPU) :Log[AR] Mode =>
```

SYS CPU Execution Screen

1. Quit Tool

Function: Exits the LOG mode of the SYS CPU, and returns to the LOG mode of the maintenance mode.
Operation: Enter "quit↵".

2. Display help menu

Function: Displays the LOG menu of the SYS CPU.
Operation: Enter "help↵".

3. Upload all log

Function: Uploads all log contents of the SYS CPU.
Operation: Enter "upload↵".

4. Clear all log

Function: Erases all log contents of the SYS CPU.
Operation: Enter "clear↵".

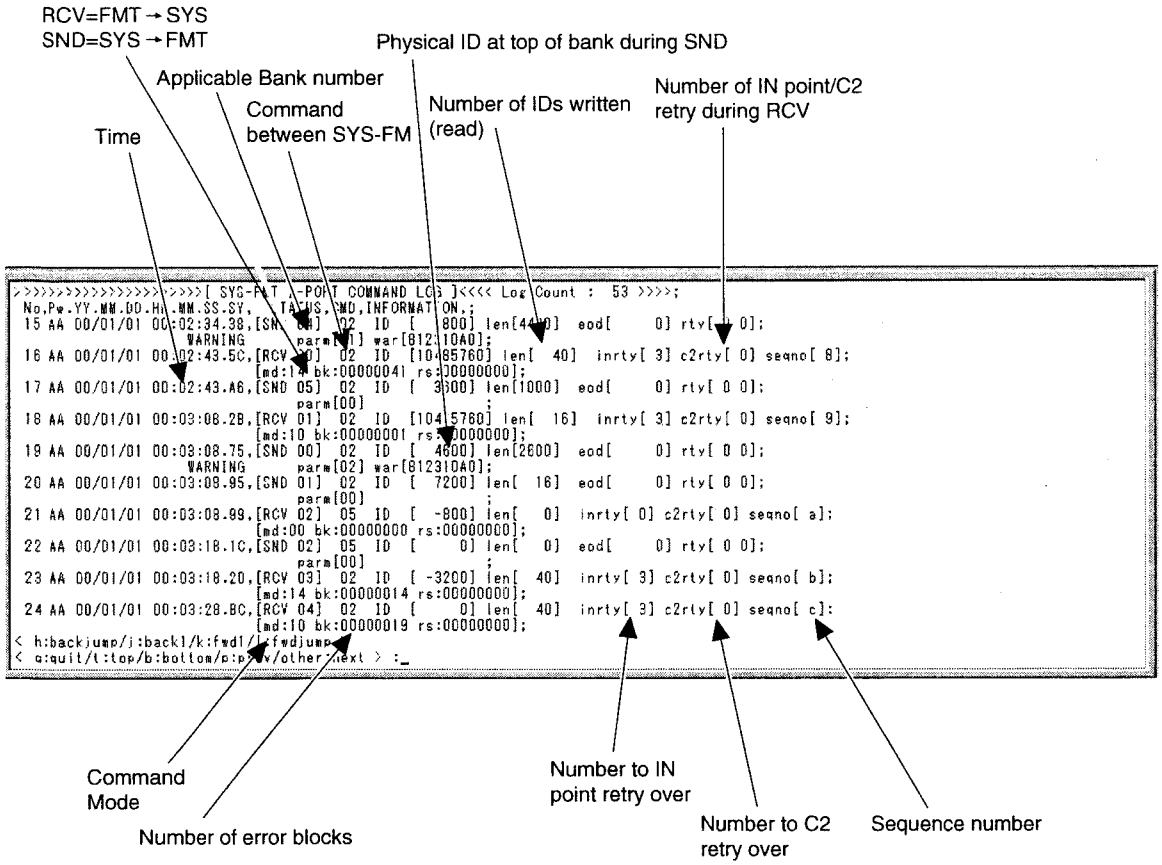
5. 2-Port RAM Command (FMT <-> SYS)

Function: Displays the communication log between the SYS CPU and FMT CPU.

Operation: Enter "31 ↵".

31: FMT 2-Port RAM Log

Displays the 2-port RAM log which is a record of all communication with the FMT CPU.



2P-RAM Execution Screen

Table of Commands between SYS and FM

Code	Contents
0x00	No request
0x01	Continuous Read command
0x02	Continuous Write command
0x03	Single Read command
0x04	Single Write command
0x05	Moves head to specified ID
0x06	Checks new tape
0x07	Rewinds tape
0x08	Ejects
0x09	Assigns ID from tape beginning
0x0a	Verify check
0x0b	Sets mode
0x0c	Replaces bank
0x0e	Fast forwards tape
0x0f	Sets STANDBY ON/OFF, timer
0x10	Sets bank information
0x11	Sets memory amount
0x12	Moves to test menu at DRV side
0x13	Downloads to CPU at DRV side
0x14	Initial check
0x15	IDC search
0x16	Shifts to error rate measurement mode
0x17	Executes self-diagnosis
0x18	IDR sensing
0x19	Longitudinal search command
0x1A	in-point set command
0x1B	SYSCON side packet mode set
0x1C	Executes cleaning
0x9D	Abort Mode set

Table of Command Modes Between SYS and FM

Code	Contents
0x40	Ignores error in disused areas
0x20	No C1 correction
0x10	No auto-prerolling
0x08	Inserts dummy in joined part
0x04	Suppresses retries and errors
0x02	Crush recording/regeneration
0x02	Crush play/regeneration
0x01	Automatically adds EOD when tape stops
0x08	ECC mode
0x07	FMT mode
0x01	Abort ON/OFF
0x02	Presence of change of standby timer
0x01	Standby ON/OFF
0x01	Only unthreading during eject

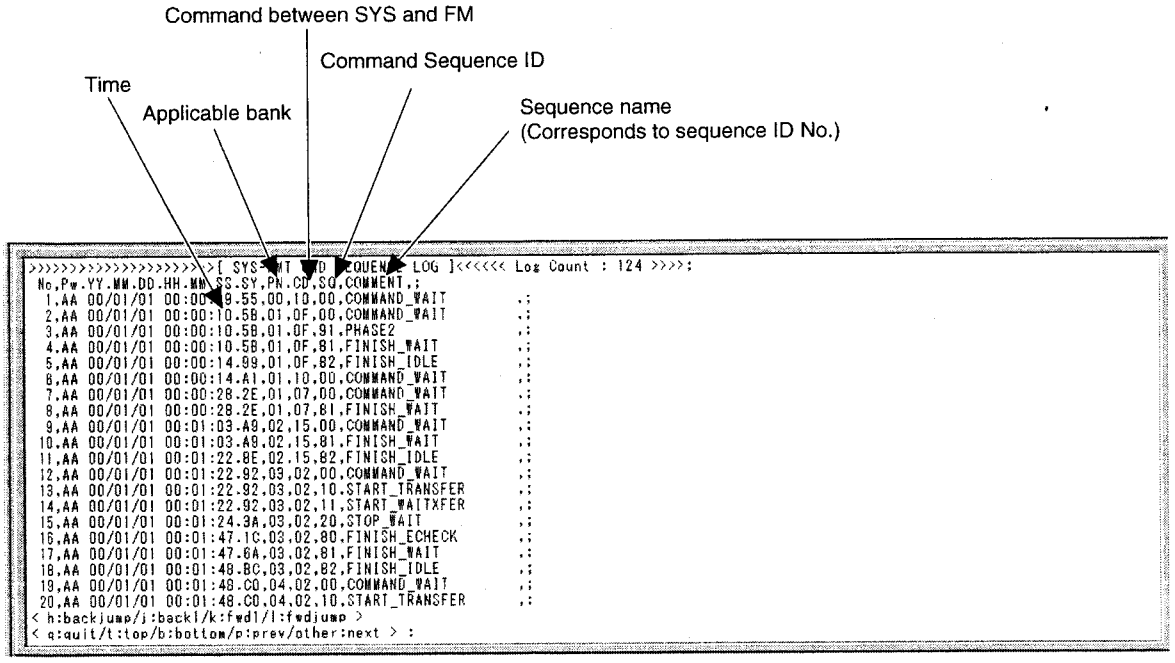
6. SNPSHT

Function: Not supported currently. (Reserved)
Operation: Enter "32↵".

7. SEQUENCE

Function: Displays the sequence log of the main routine during the read and write sequence.
Operation: Enter "33↵".

33: FMT Sequence Log
Displays the sequence log of the main routine during the read and write sequence.



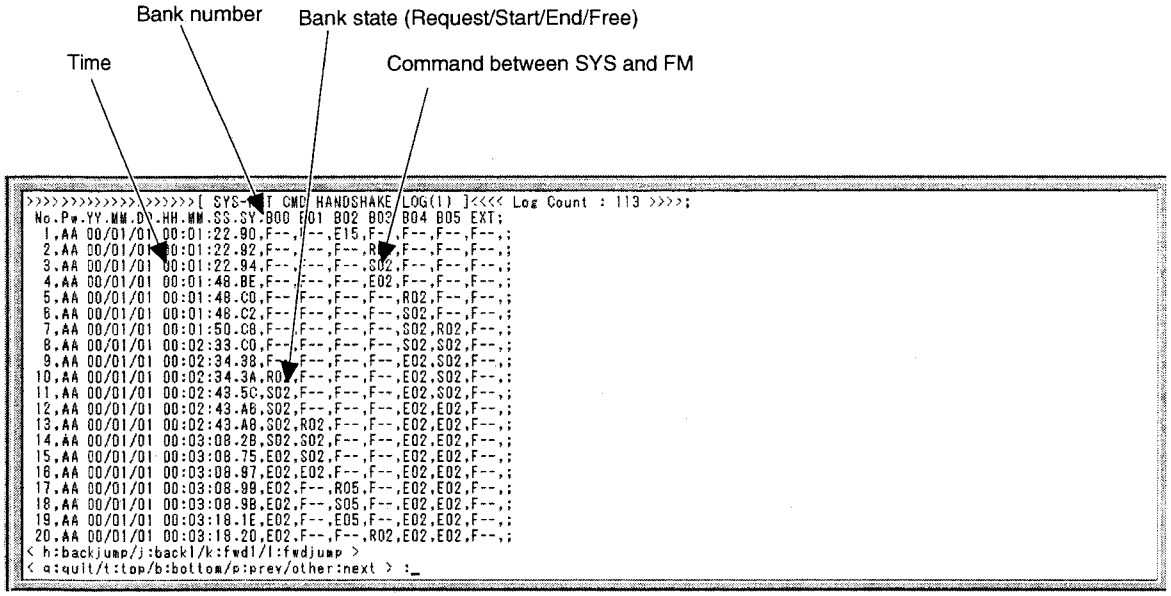
SEQUENCE Execution Screen

8. HANDSHAKE (FMT ↔ SYS)

Function: Displays the status of the command corresponding to each bank.
Operation: Enter "34 ⏎".

34: FMT Hand Shake Log
Displays the status of the command corresponding to each bank.

Displays the following for the disp mode (1: work, 2: 2ram).
Entering "1 ⏎" displays the command status log in the work area in the DRV block.
Entering "2 ⏎" displays the command status log of the 2-port RAM.



HANDSHAKE Execution Screen

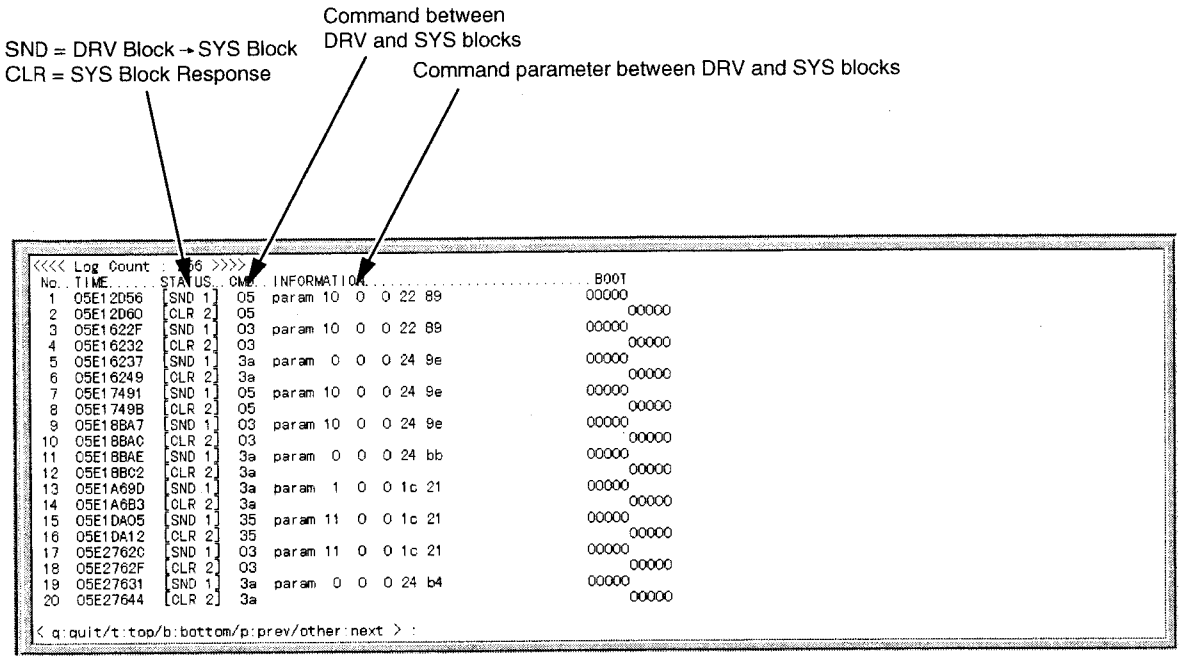
9. 2-Port RAM Command (DRV ↔ SYS)

Function: Displays the LOG of the structure which is the history of communication with the SYS block.

Operation: Enter "41 ↵".

41: SYS Block 2-port RAM (Communication Structure) Log

Displays the LOG of the structure which is the history of communication with the SYS block.



2P-RAM Execution Screen

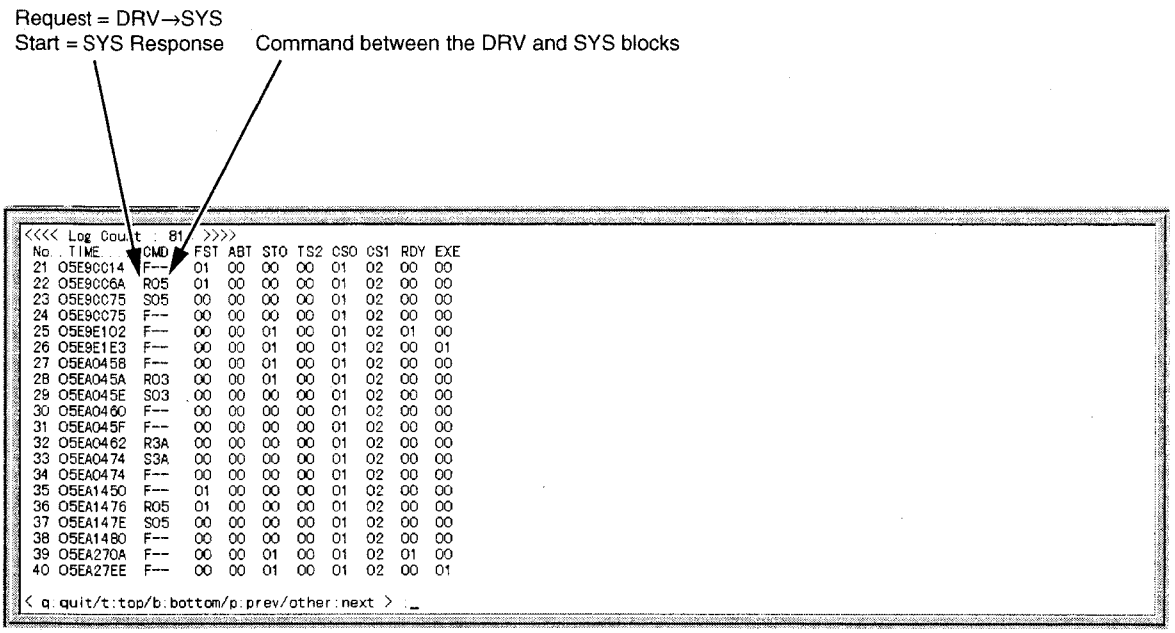
10. HANDSHAKE (DRV<->SYS)

Function: Displays the history of handshake with the SYS block.

Operation: Enter "42↵".

42: SYS Block Handshake Log

Displays the history of handshake with the SYS block.



HANDSHAKE Execution Screen

Table of Commands Between DRV and SYS Blocks

Code	Contents
0x00	No request
0x01	cassette out
0x02	half Eject
0x03	Stop
0x04	Standby ON
0x05	Play
0x06	Runs cleaning tape for 3 seconds
0x34	Standby OFF
0x35	REC
0x38	FF
0x39	REW
0x3A	Preroll
0x3B	IDC Search
0x40	Requests cleaning roller operations
0x50	Standby timer setting for DIR
0x51	Resets Hours meter

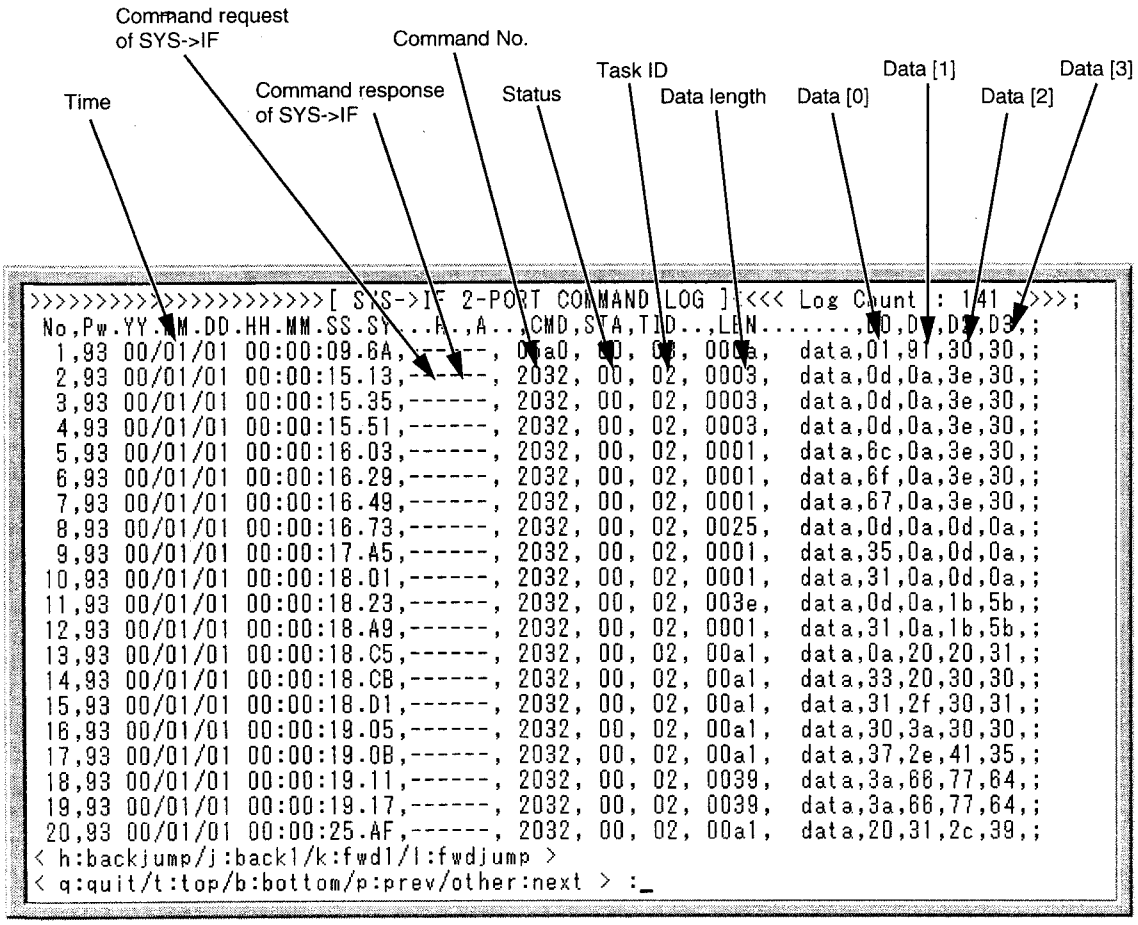
11. 2-port RAM Command (->IF)

Function: Displays the LOG of the structure which is the history of communication from the SYS CPU to the IF CPU.

Operation: Enter "51 ⏎".

51: IF Block 2-port RAM Log (SYS->IF)

Displays the LOG of the structure which is the history of communication from the SYS CPU to the IF CPU.



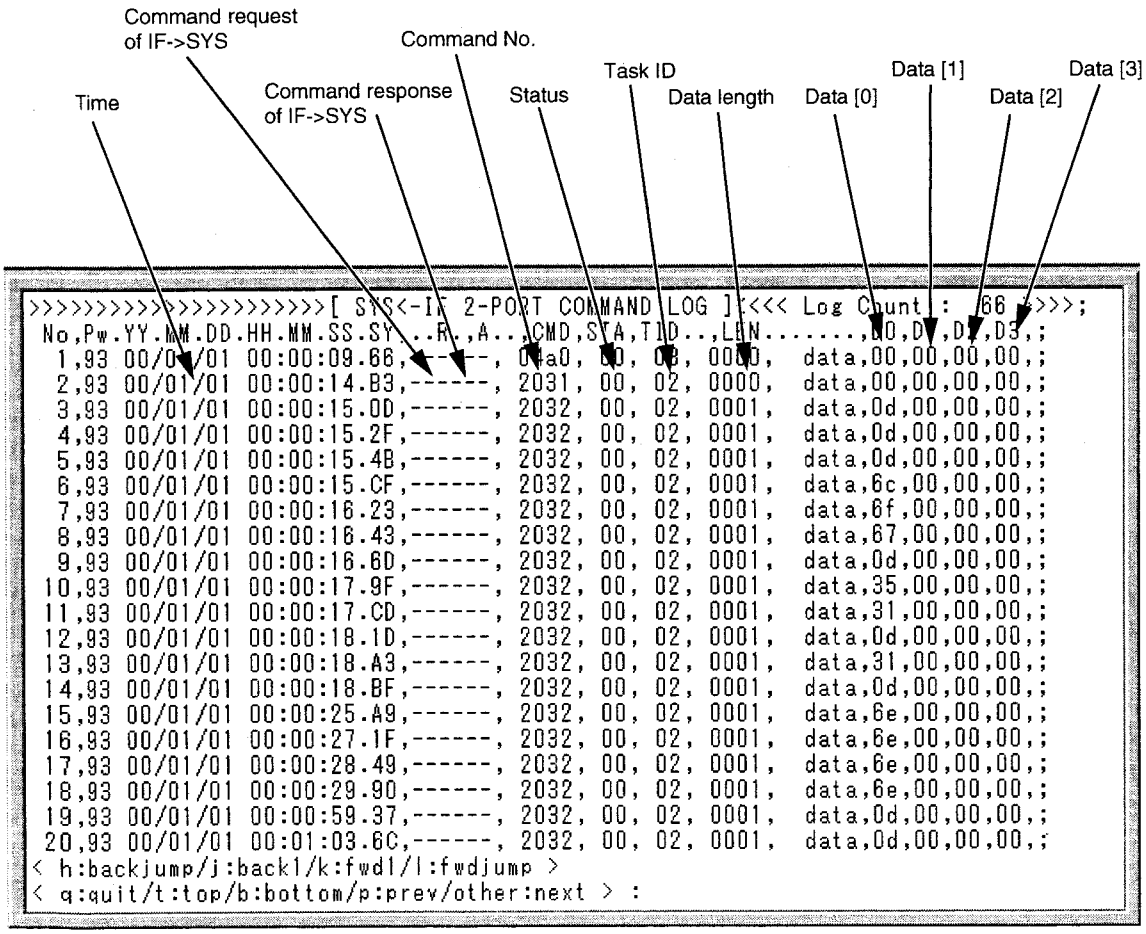
12. 2-Port RAM Command (<-IF)

Function: Displays the LOG of the structure which is the history of communication from the IF CPU to the SYS CPU.

Operation: Enter "52↵".

52: IF Block 2-port RAM Log (IF->SYS)

Displays the LOG of the structure which is the history of communication from the IF CPU to the SYS CPU.



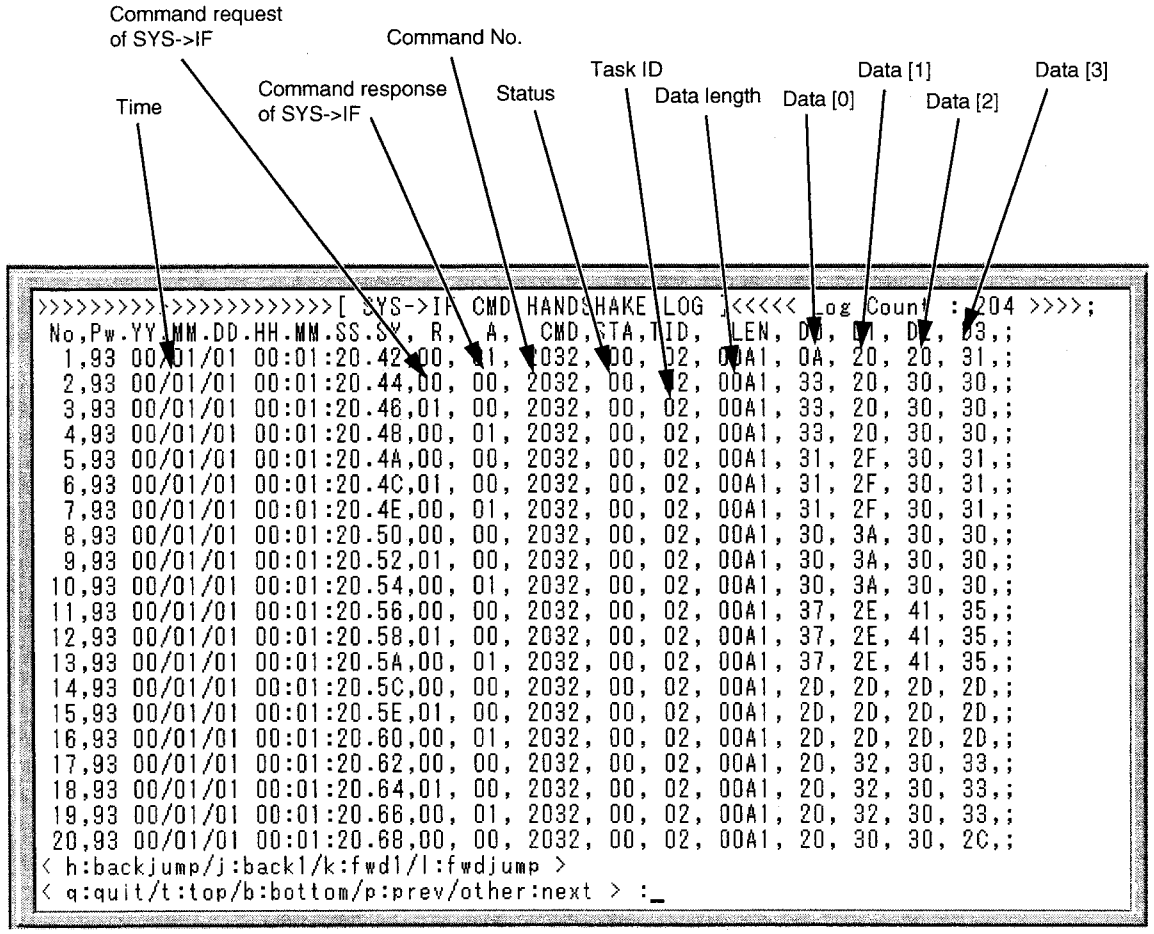
13. HANDSHAKE (->IF)

Function: Displays the history of handshake with the IF CPU.

Operation: Enter "53↵".

53: IF Block Handshake Log (SYS->IF)

Displays the history of handshake with the IF CPU.



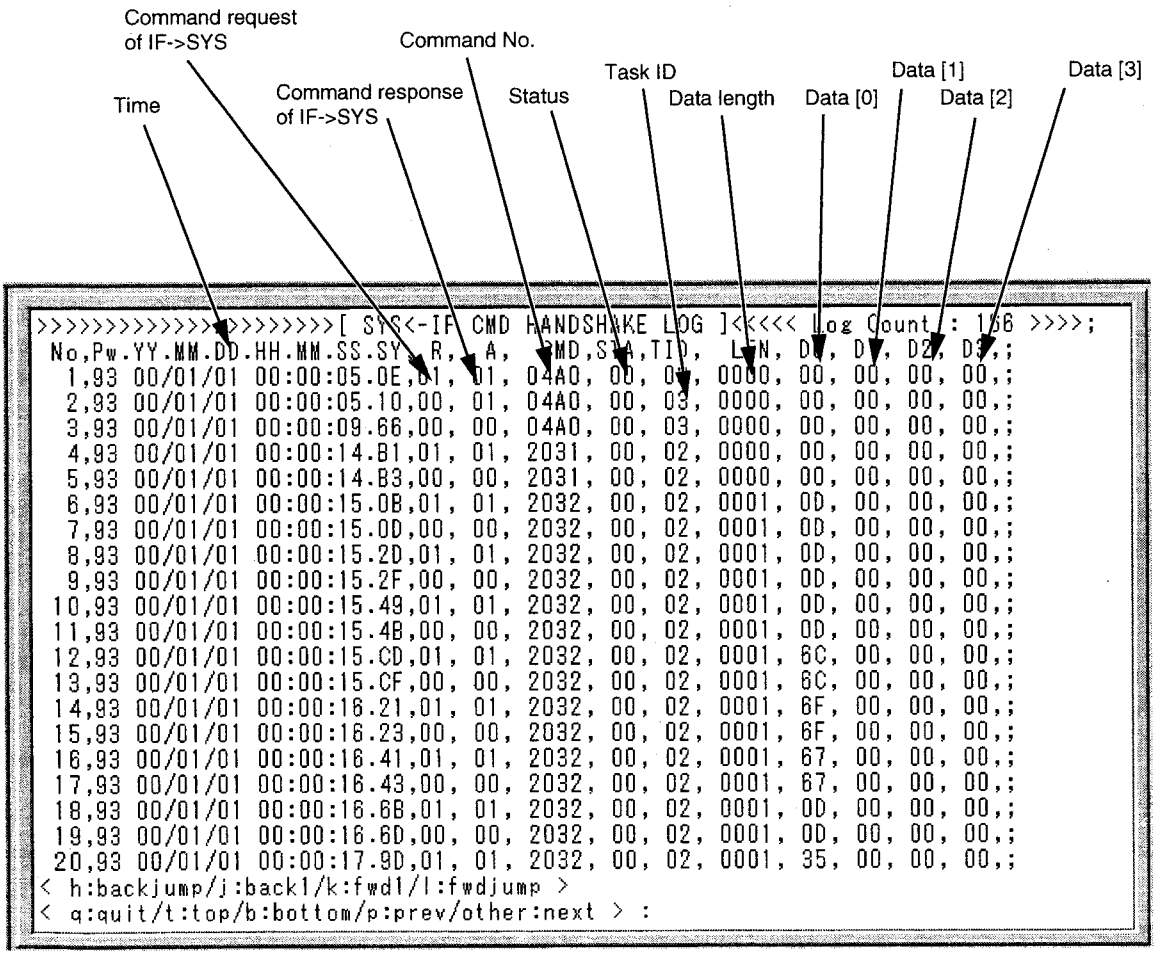
14. HANDSHAKE (<-IF)

Function: Displays the history of handshake with the IF CPU.

Operation: Enter "54↵".

54: IF Block Handshake Log (IF->SYS)

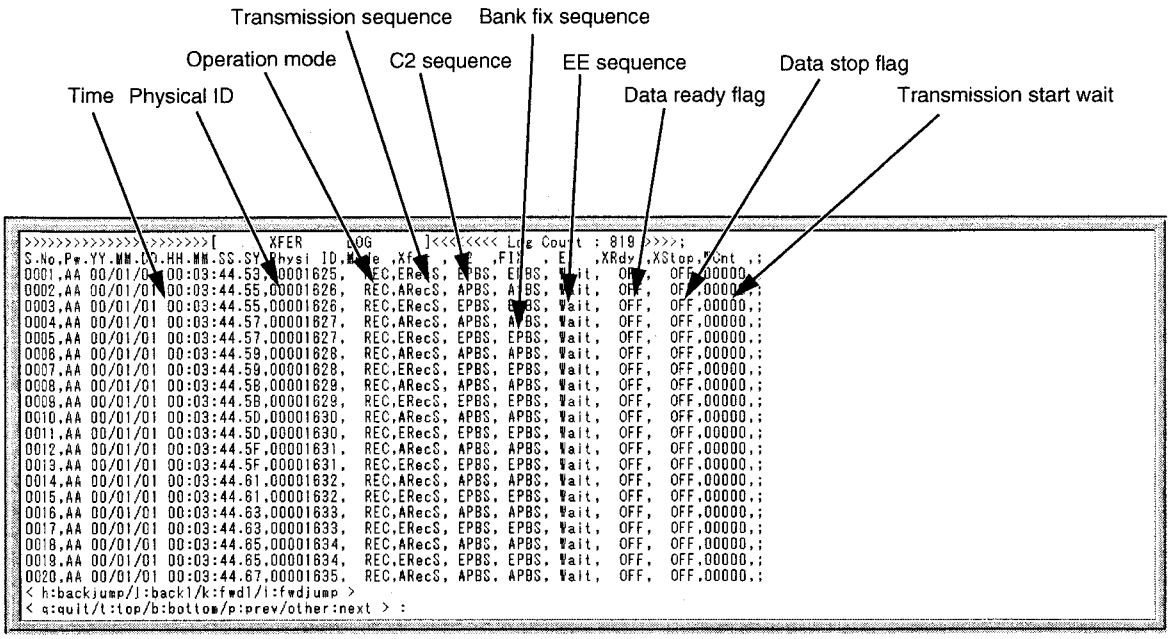
Displays the history of handshake with the IF CPU.



15. XFER

Function: Displays the operating state of the DRV block during data transmission in sync units.
Operation: Enter "61 ⏎".

61: DRV Block XFER Log
Displays the operating state of the DRV block during data transmission in sync units.


Transmission sequence
Bank fix sequence
Operation mode
C2 sequence
EE sequence
Data stop flag
Time
Physical ID
Data ready flag
Transmission start wait
>>>>>>>>>>>>>>>>>>>>>>>>[XFER LOG]<<<<<<<<<< Log Count : 819 >>>>>;
S.No,Pw,YY.MM.DD.HH.MM.SS.SY,Physi ID,Mode ,Xfer ,C2 ,FIX ,EE ,XRdy ,XStop,Cnt ,;
0001,AA 00/01/01 00:03:44.53,00001625, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0002,AA 00/01/01 00:03:44.55,00001626, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0003,AA 00/01/01 00:03:44.55,00001626, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0004,AA 00/01/01 00:03:44.57,00001627, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0005,AA 00/01/01 00:03:44.57,00001627, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0006,AA 00/01/01 00:03:44.59,00001628, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0007,AA 00/01/01 00:03:44.59,00001628, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0008,AA 00/01/01 00:03:44.5B,00001629, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0009,AA 00/01/01 00:03:44.5B,00001629, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0010,AA 00/01/01 00:03:44.5D,00001630, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0011,AA 00/01/01 00:03:44.5D,00001630, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0012,AA 00/01/01 00:03:44.5F,00001631, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0013,AA 00/01/01 00:03:44.5F,00001631, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0014,AA 00/01/01 00:03:44.61,00001632, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0015,AA 00/01/01 00:03:44.61,00001632, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0016,AA 00/01/01 00:03:44.63,00001633, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0017,AA 00/01/01 00:03:44.63,00001633, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0018,AA 00/01/01 00:03:44.65,00001634, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
0019,AA 00/01/01 00:03:44.65,00001634, REC,ERecS, EPBS, EPBS, Wait, OFF, OFF,00000,;
0020,AA 00/01/01 00:03:44.67,00001635, REC,ARecS, APBS, APBS, Wait, OFF, OFF,00000,;
< h:backjump/j:back1/k:fwd1/i:fwdjump >
< q:quit/t:top/b:bottom/p:prev/other:next > :

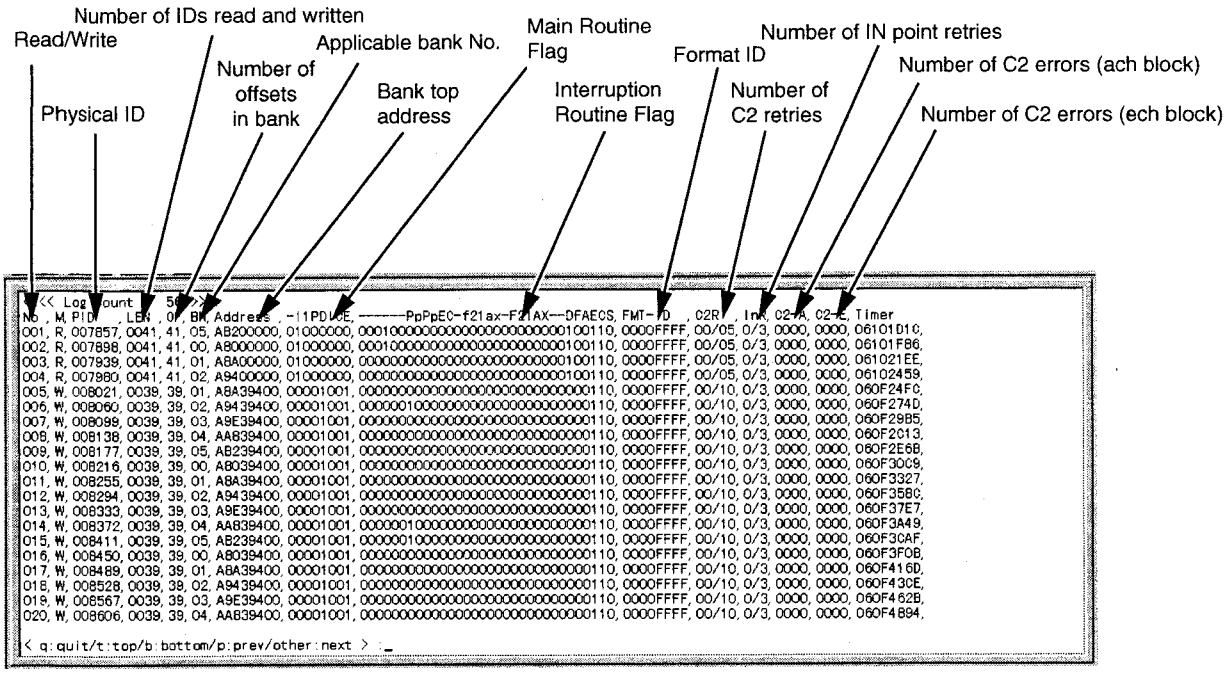
16. ERATE+INFX (Bank unit)

Function: Displays various error rate information.

Operation: Enter "71 ⏎".

71: Error Rate Log

Displays various error rate information by one bank.



ERATE + INFX Execution Screen

The above is displayed when bank information is selected.

Refer to the following table for the main routine flags and interruption routine flags.

The number of C2 retries and IN point retries is the (number actually performed)/(Maximum number of retries specified by FMT).

The number of C2 errors is the number of C2 errors which have occurred in the bank. As the C2 error is reported for every half ID in the DTF-2, up to 80 errors can be reported to 40 IDs.

Main Routine Flag

Code	Contents
bit 0	1: Writes the EOD after transfer ends.
bit 1	1: Crush records/plays
bit 2	1: Ignores C2 errors which have occurred
bit 3	1: Inserts dummy at joined parts
bit 4	1: No auto-prerolling
bit 5	1: No C1 correction
bit 6	1: Ignores errors in disused areas
bit 7	1: Recording mode for eliminating mid part

Interrupt Routine Flag

Code	Contents
bit 0	1: Ends transfer without continuous processing
bit 1	1: Started continuous processing
bit 2	1: Completed error check
bit 3	1: Interrupted transfer
bit 4	1: First bank of transfer
bit 5	1: READ direction
bit 8	1: Started writing EOD data
bit 9	1: Started ADC check of EOD data
bit 10	1: Started envelope check of EOD data
bit 11	1: Started C1 error check of EOD data
bit 12	1: Started C2 error check of EOD data
bit 13	1: Started to ignore dummy of EOD data
bit 14	1: Started bank fix of EOD data
bit 16	1: Started writing of RCF data
bit 17	1: Started ADC check of RCF data
bit 18	1: Started envelope check of RCF data
bit 19	1: Started C1 error check of RCF data
bit 20	1: Started C2 error check of RCF data
bit 21	1: Started to ignore dummy of RCF data
bit 22	1: Started bank fix of RCF data
bit 23	1: CRC error occurred
bit 24	1: EDC correctable warning
bit 25	1: EDC fatal error
bit 26	1: ADC parity error 2
bit 27	1: ADC parity error 3
bit 28	1: ADC parity error 4
bit 29	1: DPR parity error
bit 30	1: Repositioning is not possible
bit 31	1: Error occurred in Rec Confi

17. ERATE (1ID)

Function: Displays the LOG accessed during interruption processing for every 1ID.
Operation: Enter "72 ⏎".

72: 1ID Log
Displays the LOG accessed during interruption processing for every 1ID.

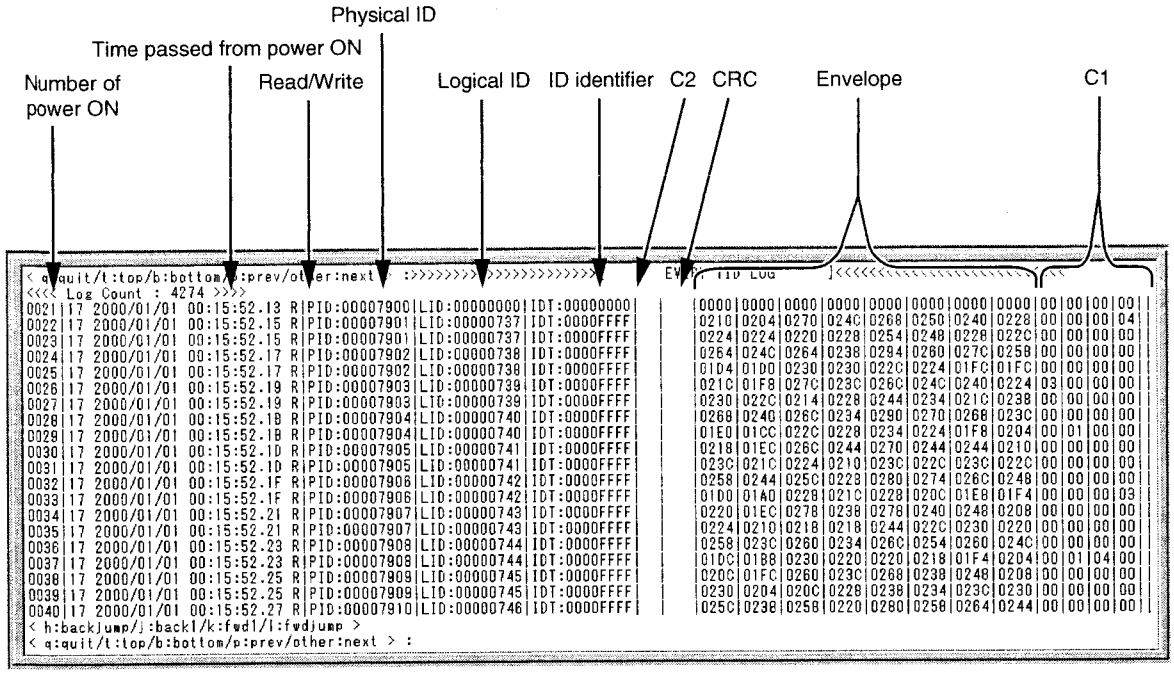
```
Display Contents          ---D----EF121EAXPTLX-ssS---21EAM
Now  hex   [0001011f] bin[00000000000000010000000100011111]
00000001 Main (time, w/r, PID)
00000004 Envelope (Aa[0], Aa[1], Bb[0], Bb[1],,,)
00000008 C1 (Aa bst, Bb bst, Cc bst, Dd bst,,,)
00000010 C2 (LID, IDT, C2, CRC)
00001000 Subcode
Input hex =>
```

When nothing is entered for the above, and only ⏎ is pressed, the mode displaying the defaults displayed is set.

```
Display Contents          ---D----EF121EAXPTLX-ssS---21EAM
Now  hex   [0001011f] bin[00000000000000010000000100011111]
```

When the value of one word is entered here, the item to be displayed can be selected. For example, entering "0000 0011 ⏎" displays the 1ID logs of the main and C2 parameters.
The default is 0001 011f.

LOG	Code	Contents
LOG_1ID_MAIN	0x00000001	Main items such as time, physical ID, abort flag
LOG_1ID_ADC	0x00000002	CRC value
LOG_1ID_ENV	0x00000004	Envelope value
LOG_1ID_C1	0x00000008	C1 error value
LOG_1ID_C2	0x00000010	C2 error, CRC error
LOG_1ID_SUBCODE0	0x00000100	Main sub code information such as ID type, file number
LOG_1ID_SUBCODE1	0x00000200	Overwrite counter, append flag etc.
LOG_1ID_SUBCODE2	0x00000400	Displays all sub codes
LOG_1ID_XFER	0x00001000	Transfer sequence information
LOG_1ID_LCONFI	0x00002000	Longitudinal ltc, ctl, and respective confi
LOG_1ID_TEMPER	0x00004000	Temperature value in unit
LOG_1ID_PARITY	0x00008000	DPR board parity information
LOG_1ID_INT_XF	0x00010000	Processing bank, ID, address (Xfer timing)
LOG_1ID_INT_ADC	0x00020000	Processing bank, ID, address (ADC timing)
LOG_1ID_INT_ENV	0x00040000	Processing bank, ID, address (Envelope timing)
LOG_1ID_INT_C1	0x00080000	Processing bank, ID, address (C1 check timing)
LOG_1ID_INT_C2	0x00100000	Processing bank, ID, address (C2 check timing)
LOG_1ID_INT_IGN1	0x00200000	Processing bank, ID, address (joint part ignore timing)
LOG_1ID_INT_FIX	0x00400000	Processing bank, ID, address (bank fix timing)
LOG_1ID_INT_EE	0x00800000	Processing bank, ID, address (EE loopback timing)



ERATE (1ID) Execution Screen

Description of Display

Physical ID:	Longitudinal ID value supplied from SYS block
Logical ID:	Logical ID value written in sub code
ID identifier:	ID identifier written in sub code (DUMMY, EOD etc.)
C2:	Displays whether C2 occurred in Aa block, Ae block, Ea block, and Ee block. If C2 has occurred, C2 is displayed.
CRC:	Like C2, CRC is displayed if CRC has occurred.
Envelope:	Aa0, Aa1, Bb0, Bb1. Cc0, Cc1, Dd0, and Dd1 in order from the left
C1:	C1 burst Aa, Bb, Cc, Dd, C1 random Aa, Bb, Cc, Dd in order from the left

If the physical IDs are even numbers, the first is of the Aa block, and the second is of the Ae block.
If the physical IDs are odd numbers, the first is of the Ea block, and the second is of the Ee block.

18. ERATE (1ID) Display Setting

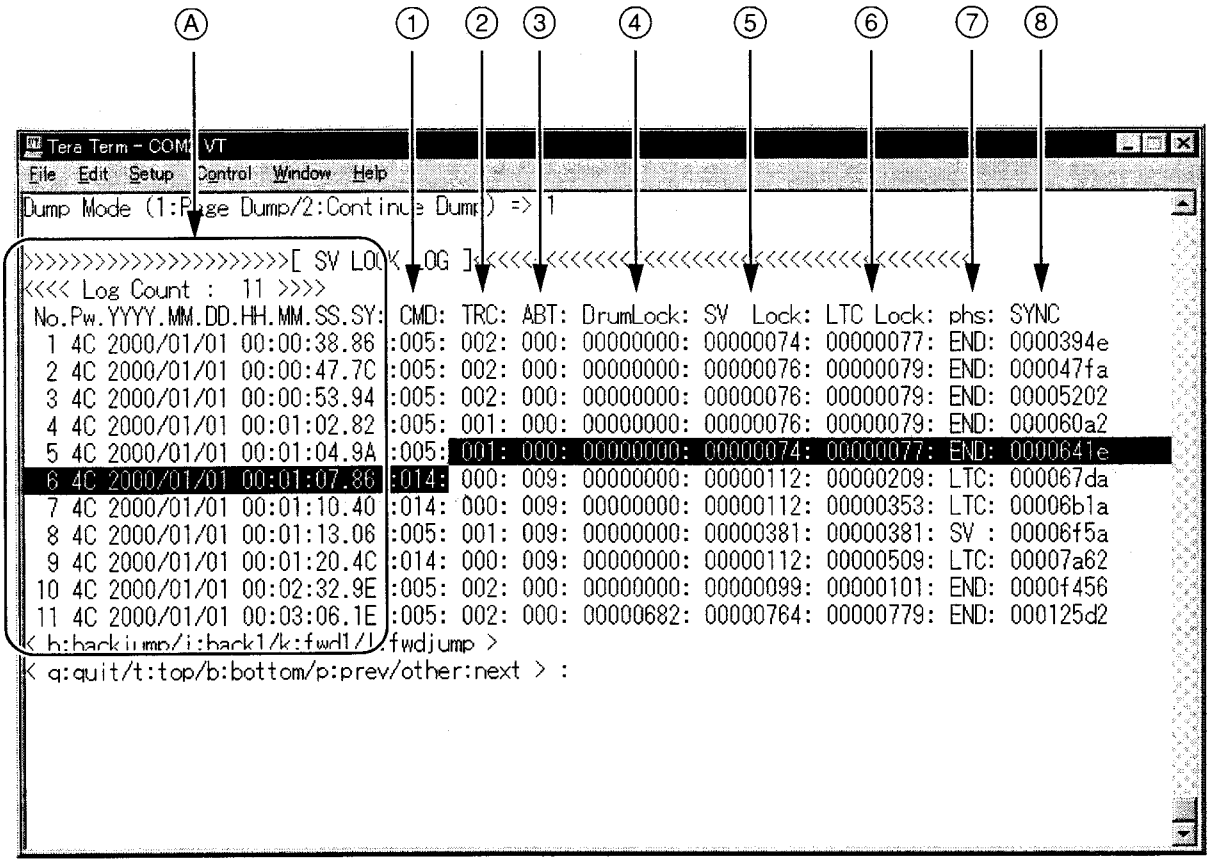
73: 1ID Log Display Setting
Selects the displaying subject of Log (log72) assessed during interruption processing for every 1ID.

At "Set 1ID log Display Contents Default Value? (y/n)", entering "y ⏎" sets the default value 0001011f at the input hex=> value of log 72.
Entering "n ⏎" enables selecting some displaying subjects at "(y/n)".

```
   help: display help Menu    upload: upload all log
  help2: display help Menu 2     off: log on/off set

<<< FMT >>>  <<< SYS >>>   <<< IF  >>>   <<<SYNC >>>     <<< ERATE >>>
31:2P-RAM    41:2P-RAM     51:2RAM(->IF)  61:XFER        71:ERATE+INFX
32:SNPSHT    42:HANDSHAKE  52:2RAM(<-IF)                 72:1ID(service)
33:SEQUENCE  43:SV LOCK    53:HANDS(->IF)                73:1ID DSP SET
34:HANDSHAKE 44:SV STA CMD 54:HANDS(<-IF)
             45:CTL.LTC
             46:SV TRACE                    Copyright (c) 2000- Sony Corp.
+-------------------------------------------------------------------------+
(SYS-CPU):Log[AR] Mode => 73
Set 1ID log Display Contents Default Value?(y/n)n
Select 1ID log Display Contents.
Display Main (time,w/r,PID)? (y/n)y
Display Envelope (Aa[0], Aa[1], Bb[0], Bb[1].,,)? (y/n)y
Display C1 (Aa bst,Bb bst,Cc bst,Dd bst...)? (y/n)y
Display C2 (LID,IDT,C2,CRC)? (y/n)y
Display Subcode? (y/n)n
Display LongConfi? (y/n)n
Display Temperature? (y/n)n
Display Parity? (y/n)n
Contents have been changed.
(SYS-CPU):Log[AR] Mode =>
```

19. SV Lock



SV Lock Display Screen

Ⓐ: Common Information between Logs
Each top area of the log information consists of the following time stamp information.
No.Pw.YYYY.MM.DD.HH.SS.SY

No.: Log number
Pw.: Number of power-ons
YYYY: Year
MM: Month
DD: Day
SS: Second
SY: SYNC counter 0 to d1 (Hex display)

Note

Only SY is displayed in hex.

① SV command (CMD)
005:SV_REC._PLAY
- Locked to prerecording
- Playback or record synchronized to prerecording

014: SV_CRASHREC
- Crash REC
- Cleaning tape running
- Lapping tape running

② Tracking specification (TRC)

002: Auto tracking (Long read)
001: Auto tracking (Short read)
000: Fixed tracking
005: Auto tracking (Short write)
006: Auto tracking (Long write)
003: Playback by Rec head

③ Command aborted (ABT)

000: Not aborted.

Others: Aborted by different command while waiting for the SV lock state

④ Drum lock time (Drum Lock)

Time from issue of command to notification of drum lock (Unit of 9.52 msec)

⑤ Servo lock time (SV lock)

Time from issue of command to notification of servo lock (Unit of 9.52 msec)

⑥ Time code continuity check time (LTC lock)

Time from issue of command to confirmation of continuity of time code (Unit of 9.52 msec)

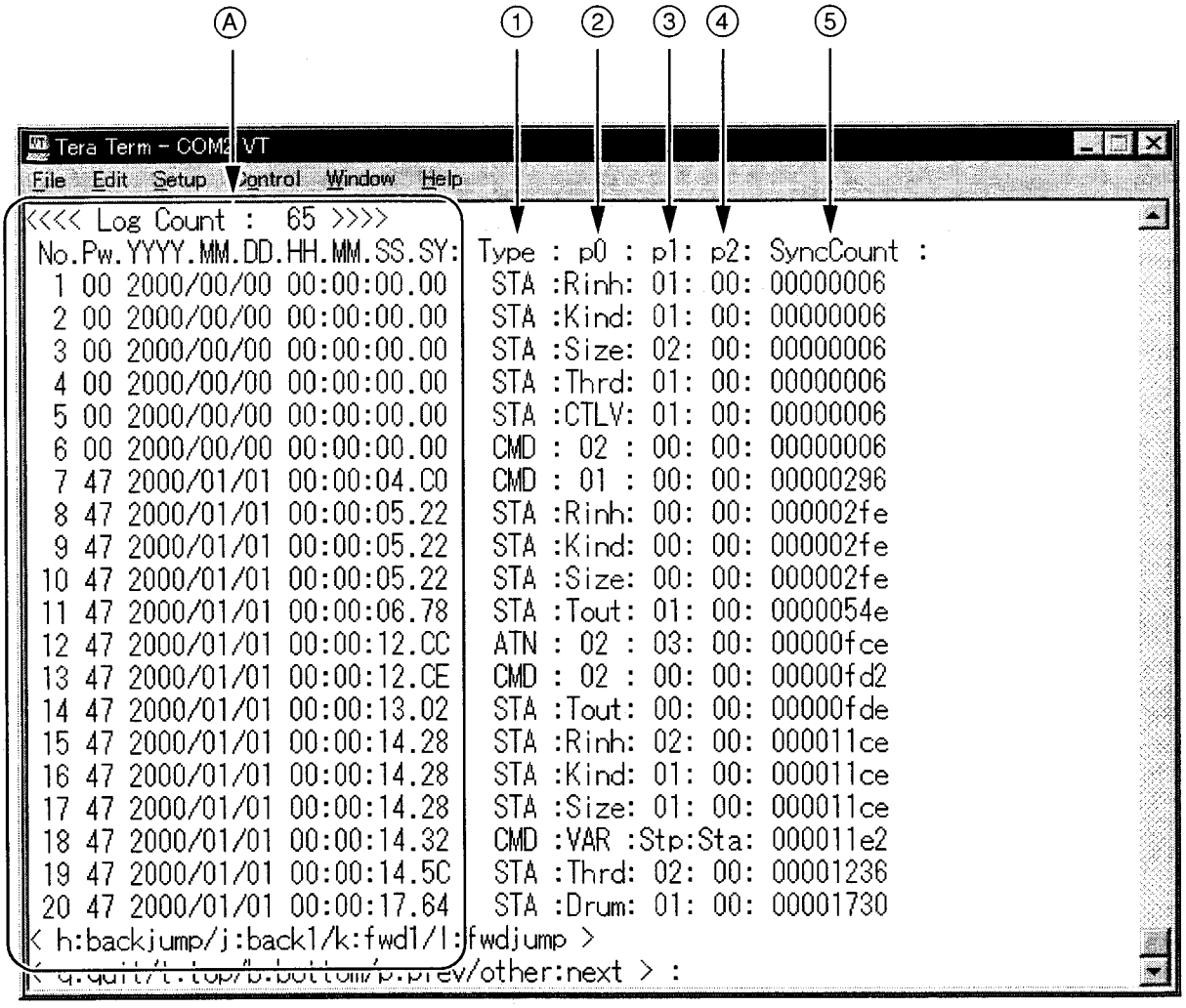
⑦ Phase (phs)

Displays in which phase the measurement ended.

- END: Drum lock, servo lock, and time code continuity were all confirmed.
- LTC: Drum lock and servo lock were measured but could not confirm the continuity of time code.
- SV: Drum lock was confirmed but not servo lock.
- DRM: Could not confirm drum lock.

⑧ Internal SYNC counter (SYNC)

20. SV Status. Command



SV Status, Command Display Screen

Description of Display

Ⓐ Refer to the section for SV Lock.

① Communication type (Type)

STA:	SV status
CMD:	SV command
ATN:	SV attention
SET:	SV set command
HRS:	Clears hours meter
---:	Other than above

②③④ parameters (P0, P1, P2)
Parameters indicating details of communication type.

<When communication type is CMD>

P0: Command type

P1, P2: Parameters

SV Command Code and Operations

Code (hex)	Function
01	Ejects cassette
02	Cassette down and tape loaded state
03	Stops tape or stops drum rotation
05	Locks to prerecording at ×1 speed Used also for recording synchronized to prerecording
VAR	VAR Specifies tape running speed. Drum rotates
0e	Crash REC or cleaning operations
20	Automatic adjustment, and self-diagnosis of SV
87	ATF gain adjustment
9F	ATF timing adjustment
xx	Various test commands

When P1 and P2 are effective

P0	P1	P2
05 (SV_REC._PLAY)	0: Tracking fix 1: Tracking short read 2: Tracking long read 3: Rec. head playback 5: Tracking short write 6: Tracking long write X: Others	0
0E (SV_CRASHREC.)	0	0: Crash REC. 1: Cleaning 2: Others
VAR (SV_VAR)	Stp: Speed = 0 (Stop) Fwd: Speed > 0 (Fwd direction) Rew: Speed < 0 (Rev direction)	Sta: Stop command Idr: IDR search Idc: IDC search Max: Maximum speed movement (FF/REW)

<When Communication Type is STA>

P0	P1	P2
Rinh (REC.INHIBIT)	0 : not inhibit 1 : inhibit	0
Kind (TAPE KIND)	0 : not sensed 1 : DTF2 2 : DIR 3 : DTF1 4 : Digital Cleaning Tape 5 : Lapping Tape 7 : Illegal Tape	0
Size (TAPE SIZE)	0 : not sensed 1 : S Cassette 2 : L Cassette	0
Lock (SV Lock)	0 : SV unlock 1 : SV lock	0
Drum (Drum Lock)	0 : Drum unlock 1 : Drum lock	0
Thrd (Thread Mode)	0: Not sensed 1: unthread end 2: Moving in thread direction 3: thread end 4: Moving in unthread direction	0
Tout (Tape Out)	0: Other than below 1: Ejected cassette	0
Cstp (capstan Stop)	1: Capstan stopped while issuing stop command 0: Other than above	0
Dew (Dew Detected)	1: Condensation is detected 0: Other than above	0
CTLV (CTL Valid)	0 : CTL invalid 1 : CTL valid	0
ADJ (adjust, diag results)	1: Executing 2: Normal end 3 to: Abnormal end 0: Other than above	0
Rol1 (Weak cleaning roller)	0: Not operating except 0: Operating	0
Rol2 (Strong cleaning roller)	0: Not operating except 0: Operating	

<When Communication Type is ATN>

P0	P1	P2
0: Fatal Error	Refer to SV error code	0
1 : Independence Mode	0	0
2: Recoverable	1: Tape top detected 2: Tape end detected 3: Tape-in detected 4: Tape lost detected 5: Tape illegal detected 6: Danger CMD 7: Could not load tape due to some reason 0: Normal	

<When Communication Type is SET>

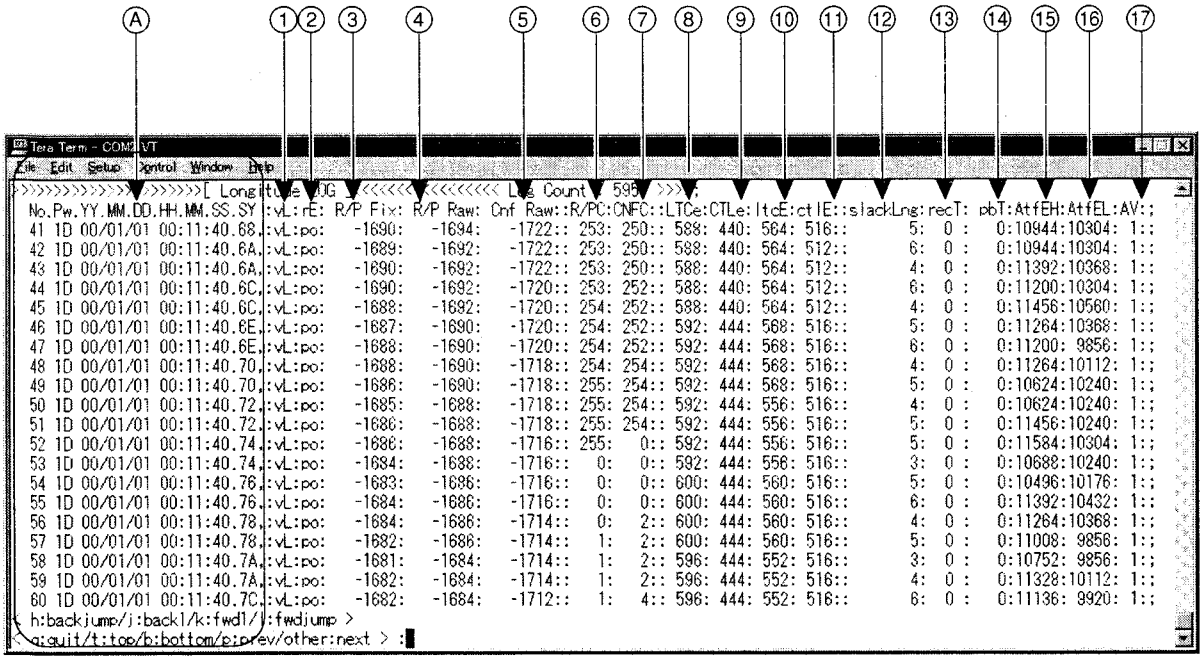
P0	P1	P2
Rol1 Weak cleaning roller request	0	0
Rol2 Strong cleaning roller request	0	0
RecT Rec tracking control	0: Tracking control value hold 1: Other than above	

<When Communication Type is HRS>

P0	P1	P2
0 : Drum-1 Hours Clear	0	0
1 : Drum-2 Hours Clear	0	0
2 : Thread Counter Clear	0	0
3 : Cleaning Roller Counter Clear	0	0
4 : Reserved1	0	0
5 : Reserved2	0	0

⑤ Internal SYNC counter

21. CTL, LTC Log



CTL, LTC Display Screen

Description of Display

Ⓐ Refer to the section for SV Lock.

① CTL status (vL)

Left (v/-): CTL valid information
- v: CTL valid
- −: When other than above
- Valid: CTL pitch is measured in pinch-on state and it is correct

Right (L/-): SV lock information
- L: SV (Both of CTL and AT) locks
- a: CTL locks and AT unlocks
- −: Both of CTL and AT unlock

② Operating mode status (rE)

Left (r/p): Operation mode information
- r: Recording operation
- p: Playing back operation
- s: Searching operation

Right (E/-): CTL/LTC REC. Confi. information
- o: Confi. Error not detected
- E: Confi. Error detected (during recording only)

③ ID value after compensation (R/P Fix)

This value is used for ID IN and search points after compensation calculated from ID before compensation (converted to raw LTC) and R/P CTL counter.

Compensation (Basic concept): The proceeding way of the CTL counter and raw LTC value are the same and when these continue for several times (currently 3 times), the value of the raw LTC is taken as the ID.
Other than this, the value is increased/decreased by the CTL counter.

④ ID value before compensation (R/P Raw)

Information read from LTC IC

Note

When the value can be taken as LTC (example: 28 hours 0A minutes 90 seconds 40 frames), "−1" will be displayed.
This value however is actually discarded using a different flag.

⑤ ID value of Confi (Cnf Raw)
Information read from LTC IC for Confi.

Note

When the value cannot be taken as ID (example: above 2591999, below -2592000), "xxxxxxxx" will be displayed.

⑥ CTL counter value of R/P block (R/PC)
Value 0 to 255: Counted as 1 in CTL1 period

⑦ CTL counter value of Confi. block (CNFC)
Value 0 to 255: Counted as 2 in CTL1 period

⑧ LTC envelope status of R/P block (LTCe)
Value 0 to 1024: R/P LTC playback level
Around 1020 during recording

⑨ CTL envelope status of R/P block (CTLe)
Value 0 to 1024: R/P CTL playback level
Around 10 during recording

⑩ LTC envelope status of Confi. block (ltcE)
Value 0 to 1024 value: Confi. LTC playback level

⑪ CTL envelope status of Confi. block (ctlE)
Value 0 to 1024: Confi. CTL playback level

⑫ Internal information on slack from SV (slackLng)

⑬ Tracking information during recording from SV (recT)
Example 1) 5: Tracking information 5
Example 2) 5h: Tracking information 5 hold

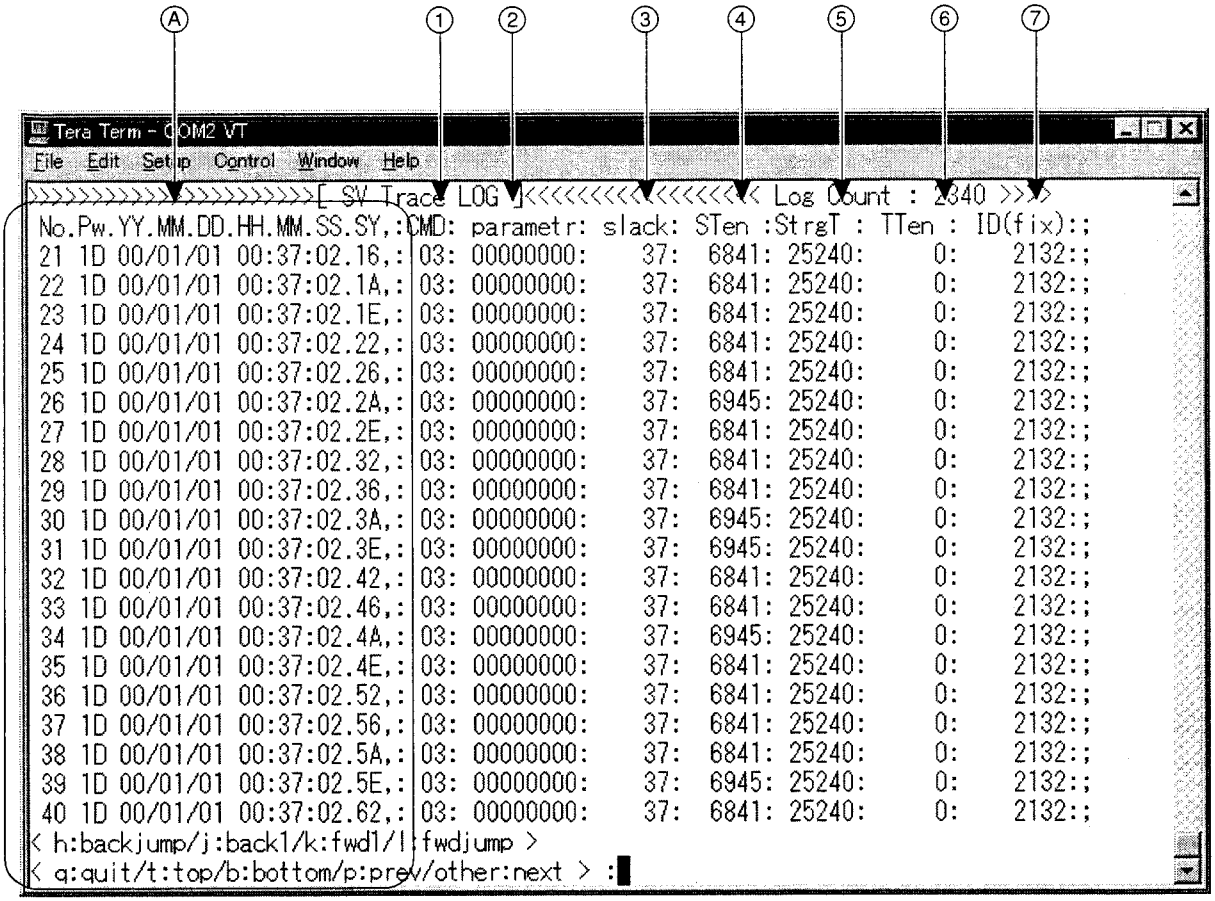
⑭ Tracking information during playback from SV (pbT)

⑮ ATF error H level from SV (AtfEH)

⑯ ATF error L level from SV (AtfEL)

⑰ ATF valid information from SV (AV)
1: Valid
0: Invalid

22. SV TRACE



SV TRACE Display Screen

Description of Display

Ⓐ Refer to the section for SV lock.

① SV Command (CMD)

CMD	Name	Function
01	SV_EJECT	Ejects cassette
02	SV_UNTHREAD	Tape rewound into cassette
03	SV_STOP	Stops tape and drum
05	SV_REC._PLAY	Locks to prerecording at ×1 speed recording synchronized to prerecording or playback
09	SV_VAR	Specifies tape running speed, FF, REW, Stop, Search command
0E	SV_CRASHREC	Crash REC or cleaning operations
20	SV_AUTOSEQ	Automatic adjustment, and self-diagnosis of SV
87	ATF_MESURE	ATF gain adjustment
9F	ATF_DHTIME	ATF timing adjustment

② SV command parameter (parameter)

③ Internal information on slack from SV (slack)

④ S side tension from SV: Current value (Sten)

⑤ S side tension from SV: Target value (Strgt)

⑥ T side tension from SV: Current value (Tten)

⑦ Fixed ID (ID Fix)
Current ID value (Same as LOG45)

5-6-8. SV CPU LOG Mode

Function: Enters the LOG mode of the SV CPU.
Operation: Enter "13↵".

After selecting this item, the log menu of the SV CPU will be automatically displayed.

Structure

The SV log is nonvolatile, therefore log records remain even when the power is turned OFF.
In addition, as the SV log structure is of the postscript ring buffer structure, logs will not saturate.
The servo log records two types of data; data recorded when fatal errors of the servo occur, and contents recorded for debugging when the servo matches certain conditions.

```
+===[ Log menu ]============================================================+
|                                                                           |
| quit: Quit Tool                    help: Display Help Menu                |
| clear: Clear all log               upload: Upload all logs                |
| adsp : Upload all set values and logs                                     |
|                                                                           |
|  11: FMT-CPU   12: SYS-CPU   13: SV-CPU   14: IF-CPU                      |
|                                                                           |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

 LOG=>13↵
```

After the above is displayed, the following will be displayed.

```
LOG
-----SVMenu-----
ERR:Show Current Logs
ERRnn:Show Latest nn Logs
UPLOAD:Dump Latest Logs
':':Top Menu
-----SVMenu-----
SV1_LOG=>



0000 0000 0000
```

Description of Display

ERR: When this command is entered, the logs of the servo recorded from when the power was turned on will be displayed in order from the latest.

ERRXX: When this command is entered, up to xx (hexadecimal) logs can be viewed from the latest logs. Logs before the power was turned on can also be viewed.

UPLOAD: Displays up to 200 log data from the latest log continuously.

" : ": Returns to the TOP menu.

After executing the respective commands, the following will be displayed on the terminal.

```
SV1_LOG=>ERR↵
Total=   0002 ShutDown=  0000  None
ON YY/MM/DD HH:MM:SS SC
Code=   0027 AttnRecoverable
Command=0007
Param=  00000000
Subcode=0402
00 00/00/00 00:00:00 00
Code=   001C SysDpramWait
Command=0007
Param=  00000000
Subcode=0000
SV1_LOG=>
```

Description of Display

TOTAL: Total number of logs from power ON.
ShutDown: Error code* causing the shutdown.
None: Shutdown error name*
ON YY/MM/DD HH:MM:SS SC: Time stamp
Code: Displays the log code and log name.
Command: Records the command code in the SV when logged.
Param: Parameter provided with the command in the SV when logged.
Subcode: Debug information.
*: Displays the code and name when shutdown occurs.

5-6-9. IF-CPU

Function: Enters the LOG mode of the IF CPU.
Operation: Enter "14↵".

After selecting this item, the LOG menu of the IF CPU will automatically be displayed.

```
LOG=>14↵
+===[ IF Log menu ]=============================================================+
|                                                                               |
| quit: Quit Tool                        help: Display Help Menu                |
| clear: Clear all log                   upload: Upload all logs                |
|                                                                               |
|  1: Remote task log      2: Display task log      3: PSC task log             |
|  4: Net task log         5: Dsp-FEP log           6: MNT task log             |
|  7: THRU task log        8: FDL task log                                      |
|                                                                               |
| 90: Serial data log     91: DPRAM data  log                                   |
|100: Initialize  log                                                           |
|                                                                               |
|                                                                               |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

IF_LOG=>
```

IF CPU LOG Mode Menu

1. Quit tool
Function: Exits the LOG mode of the IF CPU, and returns to the LOG mode of the maintenance mode.
Operation: Enter "quit↵".

2. Display Help menu
Function: Displays the LOG menu of the IF CPU.
Operation: Enter "help↵".

3. Clear All logs
Function: Erases the contents of the log of the IF CPU.
Operation: Enter "clear↵".

4. Upload all logs
Function: Uploads all contents of the log of the IF CPU.
Operation: Enter "upload↵".

5. Remote task log
Function: Displays remote communication log.
Operation: Enter "1↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

6. Display task Log

Function: Displays communication log related to display.
Operation: Enter "2↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

7. PSC task Log

Function: Displays PSC communication log.
Operation: Enter "3↵".

For details of the log, refer to "Reading the IF CPU LOG 2".

8. Network task Log

Function: Displays Network communication log.
Operation: Enter "4↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

9. Dsp-FEP Log

Function: Displays the log of command packets transmitted/received by the display port.
Operation: Enter "5↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

10. MNT task Log

Function: Displays the maintenance communication log.
Operation: Enter "6↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

11. THRU task Log

Function: Displays the log of the through mode.
Operation: Enter "7↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

12. FDL task log

Function: Displays the log of the firmware upload mode.
Operation: Enter "8↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

13. Serial data Log

Function: Displays the data transmitted/received by the serial port.
Operation: Enter "91↵".

For details of the log, refer to "Reading the IF CPU LOG 3".

14. DPRAM Data Log

Function: Displays the data transmitted/received by the DPRAM
Operation: Enter "92↵".

For details of the log, refer to "Reading the IF CPU LOG 1".

15. Initialize Log

Function: Displays command packets transmitted/received during display at initialization.
Operation: Enter "100↵".

For details of the log, refer to "Reading the IF CPU LOG 4".

Reading the IF CPU LOG 1

(Example)

```
<<IF Remote task log>>
 CNT--ON-DATE-----TIME-----SC-STAT-SIZE-CMD---TASK--DATA----------------------
 0000 5B 00/01/01 00:04:02 90  FTR 0011 \  09 08 00 00 00 00 00 00 00 00
 0001 5B 00/01/01 00:04:03 19  FTT 0002 P  08
 0002 5B 00/01/01 00:04:03 19  TFR 0002 P  08
 0003 5B 00/01/01 00:04:03 19  TFT 0011 \  08 08 10 0  10 00 04 00 00 00
 0004 5B 00/01/01 00:04:03 1A  FTR 0011 \  08 08 10 0  10 00 04 00 00 00
 0005 5B 00/01/01 00:04:03 4A  FTT 0002 P  09
 0006 5B 00/01/01 00:04:03 4A  TFR 0002 P  09
 0007 5B 00/01/01 00:04:03 4A  TFT 0011 \  09 08 00 00 00 00 00 00 00 00
 0008 5B 00/01/01 00:04:03 4B  FTR 0011 \  09 08 00 00 00 00 00 00 00 00
 0009 5B 00/01/01 00:04:03 A7  FTT 0002 P  08
 0010 5B 00/01/01 00:04:03 A7  TFR 0002 P  08
 0011 5B 00/01/01 00:04:03 A7  TFT 0011 \  08 08 10 0  10 00 04 00 00 00
 0012 5B 00/01/01 00:04:03 A8  FTR 0011 \  08 08 10 0  10 00 04 00 00 00
 0013 5B 00/01/01 00:04:03 C9  FTT 0002 P  09
 0014 5B 00/01/01 00:04:03 C9  TFR 0002 P  09
 0015 5B 00/01/01 00:04:03 C9  TFT 0011 \  09 08 00 00 00 00 00 00 00 00
  (Q:quit/A:all/T:top/B:bottom/P:previous/N:next) =>
```

CNT: LOG count (From 0000 to 1021)
ON: Power ON count
DATE: Date (Reset to January 1, 2000 at power ON)
[YY: MM: DD]
Year (Lower 2 digits) Month Day

TIME: Time (Reset to 0 hour, 0 minute, 0 second at power ON)
[HH: MM: SS]
Hour Minute Second

SC: Sync count (Reset to 0 at power ON. From 0x00 to 0xD1)

STAT: LOG status

[X Y Z] X•Y = (T:task/F:FEP/B:BEP/H:host/C:other CPU/?:Unknown)

Z = (T:transmission/R:Reception/?:Unknown)

Self

Other party Transmission/reception

- TFT: Transmitted from task to FEP
- TFR: Received by task from FEP
- TBT: Transmitted from task to BEP
- TBR: Received by task from BEP
- TTT: Transmitted from task to task
- FTT: Transmitted from FEP to task
- FTR: Received by FEP from task
- FHT: Transmitted from FEP to host
- FHR: Received by FEP from host
- BTT: Transmitted from BEP to task
- BTR: Received by BEP from task
- CBR: Received by other CPU from BEP

SIZE: Number of data transmitted and received

CMD: Command transmitted and received

TASK: Task number targeted
(However, when communicating with the serial port, the task number is not required)

DATA: Parameter of command transmitted and received

Note

The each data of CMD/TASK/DATA is character-converted and displayed if character-convertible (0x20 to 0x7E).

FEP (Front End Processor) is the general term of the I/F process routine nearest to a user. BEP (Back End Processor) is the general term of the most inner I/F process routine and mainly means the part to process the interface with FMT-CPU.

Reading the IF CPU LOG 2

(Example)

```
<<IF PSC task log>>
CNT--ON-DATE-----TIME-----SC-DIR-SIZE-TG-CMD------DATA------------------------
0016 38 00/01/01 00:40:35 8F F2P 000C DB EX_STAT  00
0017 38 00/01/01 00:40:35 8F P2F 0056 DB EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
0018 38 00/01/01 00:40:36 AD F2P 000C DC EX_STAT  00
0019 38 00/01/01 00:40:36 AD P2F 0056 DC EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
0020 38 00/01/01 00:40:37 C9 F2P 000C DD EX_STAT  00
0021 38 00/01/01 00:40:37 C9 P2F 0056 DD EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
0022 38 00/01/01 00:40:39 17 F2P 000C DE EX_STAT  00
0023 38 00/01/01 00:40:39 17 P2F 0056 DE EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
0024 38 00/01/01 00:40:40 35 F2P 000C DF EX_STAT  00
0025 38 00/01/01 00:40:40 35 P2F 0056 DF EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
0026 38 00/01/01 00:40:41 55 F2P 000C E0 EX_STAT  00
0027 38 00/01/01 00:40:41 55 P2F 0056 E0 EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
0028 38 00/01/01 00:40:42 71 F2P 000C E1 EX_STAT  00
0029 38 00/01/01 00:40:42 71 P2F 0056 E1 EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
0030 38 00/01/01 00:40:43 91 F2P 000C E2 EX_STAT  00
0031 38 00/01/01 00:40:43 91 P2F 0056 E2 EX_STAT  04 4E 6F 20 54 61 70 65 20 20 20 20 30 48 20
(Q:quit/A:all/T:top/B:bottom/P:previous/N:next)=>
```

CNT: LOG count (From 0 to 1021)

ON: Power ON count

DATE: Date (Reset to January 1, 2000 at power ON)

[YY: MM: DD]

Year (Lower 2 digits) — Month — Day

TIME: Time (Reset to 0 hour, 0 minute, 0 second at power ON)

[HH: MM: SS]

Hour — Minute — Second

SC: Sync count (Reset to 0 at power ON. From 0x00 to 0xD1)

DIR: LOG status

- F2P: Transmitted from FEP to task
- P2F: Transmitted from task to FEP
- B2P: Transmitted from BEP to task
- P2B: Transmitted from task to BEP

SIZE: Number of data transmitted and received

TG: Tag number (0x00 to 0xff)

CMD: Command transmitted and received

DATA: Parameter of command transmitted and received

Reading the IF CPU LOG 3

(Example)

```
<<IF FEP log>>
CNT--ON-DATE-----TIME-----SC-DATA-----------------------------------------
0000 02 00/01/01 01:48:20 53 21 08 00 05 02 02 01 67 96 00 A0 53 65 6C 65 63 740
0001 02 00/01/01 01:48:20 56 22 08 00 02 40 6C 01 67 96 00 A0 52 45 43 20 49 440
0002 02 00/01/01 01:48:20 62 21 08 00 05 02 02 01 67 96 00 A0 44 49 41 47 20 6D0
0003 02 00/01/01 01:48:20 65 22 08 00 02 40 6C 01 67 96 00 A0 56 20 20 20 20 540
0004 02 00/01/01 01:48:20 71 21 08 00 05 02 02 01 67 96 00 A0 52 45 43 20 49 440
0005 02 00/01/01 01:48:20 74 22 08 00 02 40 6C 01 67 96 00 A0 52 45 43 20 49 440
0006 02 00/01/01 01:48:20 80 21 08 00 05 02 02 01 67 96 00 A0 53 65 6C 65 63 740
0007 02 00/01/01 01:48:20 83 22 08 00 02 40 6C 01 67 96 00 A0 52 45 43 20 49 440
0008 02 00/01/01 01:48:20 8F 21 08 00 05 02 02 01 67 96 00 A0 44 49 41 47 20 6D0
0009 02 00/01/01 01:48:20 92 22 08 00 02 40 6C 01 67 96 00 A0 52 45 43 20 49 440
0010 02 00/01/01 01:48:20 9E 21 08 00 05 02 02 01 67 96 00 A0 55 50 44 41 54 450
0011 02 00/01/01 01:48:20 A1 22 08 00 02 40 6C 01 67 96 00 A0 50 52 45 20 49 440
0012 02 00/01/01 01:48:20 AD 21 08 00 05 02 02 01 67 96 00 A0 52 45 43 20 49 440
0013 02 00/01/01 01:48:20 B0 22 08 00 02 40 6C 01 67 96 00 A0 52 45 43 20 49 440
0014 02 00/01/01 01:48:20 BC 21 08 00 05 02 02 01 67 96 00 A0 53 65 6C 65 63 740
0015 02 00/01/01 01:48:20 BF 22 08 00 02 40 6C 01 67 96 00 A0 52 45 43 20 49 440
(Q:quit/A:all/T:top/B:bottom/P:previous/N:next) =>
```

CNT: LOG count (From 0 to 1021)

ON: Power ON count

DATE: Date (Reset to January 1, 2000 at power ON)

[YY: MM: DD]

Month

Year (Lower 2 digits) Day

TIME: Time (Reset to 0 hour, 0 minute, 0 second at power ON)

[HH: MM: SS]

Minute

Hour Second

SC: Sync count (Reset to 0 at power ON. From 0x00 to 0xD1)

DATA: Data transmitted and received

Reading the IF CPU LOG 4

(Example)

```
<<IF Initialize log>>
CNT--STAT--ON--CMD-----------------------------------------------------------
   0 RECV 075  Time out!
   1 RECV 075  Time out!
   2 SEND 075  020401260101d3
   3 RECV 075  04
   4 SEND 075  02140122ffff00000000000000000000000000000000cb
   5 RECV 075  04
   6 SEND 075  0205012200084090
   7 RECV 075  04
   8 SEND 075  020401260101d3
   9 RECV 075  04
  10 SEND 075  02050127ffffffd6
  11 RECV 075  04
  12 SEND 075  02150121c000a0496e697469616c697a696e672e2e2e2ec6
  13 RECV 075  04
  14 SEND 075  02150121fc0aa020202020202020205b20312f31325d2068
  15 RECV 075  04
 (Q:quit/A:all/T:top/B:bottom/P:previous/N:next) =>
```

Description of Display

CNT: LOG count (From 0 to 1021.)

STAT: Transmission/reception status to display (SEND = Transmitted to display, RECV = Received from display)

ON: Power ON count

CMD: Command packet transmitted and received

Log Display Operation

When logs are displayed, the following message will be displayed at the very bottom.
This is the log display operation command. By entering the characters specified for the desired operation, the log display can be modified.

```
(Q:quit/A:all/T:top/B:bottom/P:previous/N:next) =>
```

Q: quit (Exits this log display)

A: All (Displays all pages of the log currently displayed)

T: top (Displays the first page of the log currently displayed)

B: Bottom (Displays the last page of the log currently displayed)

P: previous (Displays the previous page of the log currently displayed)

N: next (Displays the next page of the log currently displayed)

For example, as the log displays 16 lines in one page, to view the log of the next page, enter "N".

5-7. ROM Command

This command is used for displaying the firmware version of each CPU.
Enter "ROM ↵" from the maintenance terminal. The firmware version of each CPU will be displayed.

Note

The ROM command cannot be activated from other mode. To activate the ROM command, terminate the current mode first.

```
rom ↵
*** [ROM VERSION DISPLAY] ***
[FW   Rev]     X.XX

[FMT]          XX.XX.XX
[SYS]          XX.XX.XX
[IF]           XX.XX.XX
[SV1]          XX.XX.XX
[SV2]          XX.XX.XX
[DSP]          XX.XX.XX
[ISP]          XX.XX.XX
```

ROM Command Execution Screen

5-8. SERVICE Mode

This mode is used for setting/displaying data for servicing.
Enter "SERV↵" from the maintenance terminal. The message "SERV=>" will be displayed as the prompt. Enter the command number (or command) after this prompt and press ↵. The command will be executed. Entering "quit↵" terminates the SERVICE mode

Note

- The SERVICE mode cannot be activated from other mode. To activate the SERVICE mode, terminate the current mode first.
- Settings of this SERVICE mode are effective after the GY-8240 is restarted. After setting this mode, be sure to turn off and then on the power.

```
serv↵
+===[ Service menu ]=====================================================+
|                                                                        |
| quit: Quit Tool                      help: Display Help Menu           |
|                                                                        |
|  1 : Service information set          2 : Service information display  |
|  3 : Default service information set                                   |
|                                                                        |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

SERV=>
```

SERVICE Mode Execution Screen

5-8-1. Quit Tool

Function: Exits the SERVICE mode and returns to the maintenance mode.
Operation: Enter "quit↵".

5-8-2. Display Help Menu

Function: Displays the SERVICE mode menu.
Operation: Enter "help↵".

```
SERV=>help↵
+===[ Service menu ]=====================================================+
|                                                                        |
| quit: Quit Tool                      help: Display Help Menu           |
|                                                                        |
|  1 : Service information set          2 : Servvice information display |
|  3 : Default service information set                                   |
|                                                                        |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+

SERV=>
```

Display Help Menu Execution Screen

5-8-3. Service Information Set

Function: Sets all data for servicing.
Operation: Enter "1↵".

Pressing only ↵ does not change the current value.
(The current value is displayed in the [ ].)
At the end, a message to confirm whether to set the value entered will be displayed. Entering "y↵" sets the values. Entering "n↵" cancels the setting.

```
SERV=> 1↵

*****[ SERVICE INFORMATION SET ]************************
Option 1 port  speed(bps)  (0:4800/1:9600/2:19200/3:38400)
                                        [3]          =>1↵
Option 2 port  speed(bps)  (0:4800/1:9600/2:19200/3:38400)
                                        [1]          =>3↵
BT bit ignore mode  (0:OFF/1:ON)        [0]          =>1↵
PetaServe mode  (0:OFF/1:ON)            [0]          =>↵
Report early-warning mode  (0:OFF/1:ON) [0]          =>↵
Manual cleaning mode  (0:OFF/1:ON)      [0]          =>1↵
Manual Eject mode  (0:OFF/1:ON)         [0]          =>1↵
Inquiry source version  (0:ROM/1:CUSTOM) [0]         =>1↵

Are you sure?(Y:yes/N:no) =>y↵

SERV=>
```

Service Information Set Execution Screen

1. Option 1 port speed (bps)

Sets the communication speed of the Option 1 port.

0: 4800 bps
1: 9600 bps
2: 19200 bps
3: 38400 bps

2. Option 2 port speed (bps)

Sets the communication speed of the Option 2 port.

0: 4800 bps
1: 9600 bps
2: 19200 bps
3: 38400 bps

3. BT Bit ignore mode

Sets the BT bit ignore mode.

0: When the BT bit of the LOCATE/READ POSITION command is "1", the check condition is returned.

1: The BT bit of the LOCATE/READ POSITION command is ignored.

4. PetaServe mode

Sets the PetaServe mode.

0: Standard specifications

1: The specifications of the following two SCSI commands differ from the standard specifications.

- locate (2Bh) command
  When the Byte1 Bit0 (immediate bit) of CDB is "0", the actual locate operation is performed.
  (Standard specifications; Only the logical pointer is moved)
- Read Position (34h) command
  When the Byte1 Bit4 of CDB is "1", the physical position (ID) of the tape is returned to the initiator.
  (Standard specifications: When the Byte1 Bit4 of CDB is "1", CC: Illegal Request is set.)

5. Report-early warning mode

Sets the report-early warning mode.

0: When operations were performed to the Near EOP area by the Space command, early warning will be reported.

1: When operations were performed to the Near EOP area by the Space command, early warning will not be reported.
(However, Report-early warning mode can also be set using the mode select command.)

6. Manual cleaning mode

Sets the cleaning mode.

0: Auto cleaning mode

1: Manual cleaning mode

7. Manual eject mode

Sets the eject mode when an unsupported cassette is inserted in the GY-8240.

0: Auto eject mode

1: Manual eject mode

8. Inquiry source version

Selects which version to return for the inquiry command return.

0: Returns the actual ROM revision.

1: Returns the vendor ROM version set by the Custom menu.

5-8-4. Service Information Display

Function: Displays all current values set.
Operation: Enter "2↵".

```
SERV=> 2↵

*****[ SERVICE INFORMATION DISPLAY ]*********************
Option 1 port  speed(bps)  (0:4800/1:9600/2:19200/3:38400)
                                              [3]
Option 2 port  speed(bps)  (0:4800/1:9600/2:19200/3:38400)
                                              [1]
BT bit ignore mode  (0:OFF/1:ON)              [0]
PetaServe mode  (0:OFF/1:ON)                  [0]
Report early-warning mode  (0:OFF/1:ON)       [0]
Manual cleaning mode  (0:OFF/1:ON)            [0]
Manual Eject mode  (0:OFF/1:ON)               [0]
Inquiry source version  (0:ROM/1:CUSTOM)      [0]

SERV=>
```

Service Information Display Execution Screen

5-8-5. Default Service Information Set

Function: Sets all data for servicing to their default values.
Operation: Enter "3↵".

The data in [ ] show the currently set value while the default value to be set is shown after "=>".
At the end, a confirmation message will be displayed. To set the default value, enter "y↵". To cancel the setting, enter "n↵".

```
SERV=> 3↵

Option 1 port  speed(bps)  (0:4800/1:9600/2:19200/3:38400)
                                        [3]                 => 3
Option 2 port  speed(bps)  (0:4800/1:9600/2:19200/3:38400)
                                        [1]                 => 1
BT bit ignore mode  (0:OFF/1:ON)        [0]                 => 0
PetaServe mode  (0:OFF/1:ON)            [0]                 => 0
Report early-warning mode  (0:OFF/1:ON) [0]                 => 0
Manual cleaning mode  (0:OFF/1:ON)      [0]                 => 0
Manual Eject mode  (0:OFF/1:ON)         [0]                 => 0
Inquiry source version  (0:ROM/1:CUSTOM) [0]                => 0

Are you sure? (Y:yes/N:no) =>y↵

SERV=>
```

Default Service Information Set Execution Screen

Default Values of Each Item

- Option 1 port speed: 38400 bps
- Option 2 port speed (PSC Port): 9600 bps
- BT bit ignore mode: OFF
- PetaServe mode: OFF
- Report early warning mode: OFF
- Manual cleaning mode: OFF
- Manual eject mode: OFF
- Inquiry source version: ROM

5-9. ADJ Mode

This mode is used for automatically adjusting SV and RF.
The ADJ mode is set by entering "ADJ↵" from the maintenance terminal. The message "ADJ=>" will be displayed as the prompt. Enter the command number (or command) after this prompt and press ↵. The command will be executed.
Entering "quit↵" after this prompt terminates the ADJ mode.

Note

The ADJ mode cannot be activated from the other mode. To activate the ADJ mode, terminate the current mode first.

```
adj↵
+===[ Adjustment mode menu ]================================================+
|                                                                           |
| quit: Quit Tool                        help: Display Help Menu            |
|                                                                           |
| << SV >>                               << RF >>                           |
|  1: SV check                           51: RF PB all adjust (DTF-2)       |
|                                        52: RF PB all adjust (DTF-1)       |
|                                        53: RF error rate (DTF-2 PB Align) |
|                                        54: RF error rate (DTF-2 REC confi)|
|                                        55: RF error rate (DTF-2 REC/PB)   |
|                                        56: RF error rate (DTF-1 PB Align) |
|                                        58: RF data save                   |
|                                                                           |
+=================================== [ Copyright (c) 2000 Sony Corp. ] ===+


ADJ=>
```

ADJ Mode Menu Execution Screen

5-9-1. Quit Tool

Function: Exits the ADJ mode and returns to the maintenance mode.
Operation: Enter "quit ⏎".

5-9-2. Display Help Menu

Function: Displays the ADJ mode menu.
Operation: Enter "help ⏎".

```
ADJ=>help ⏎
+===[ Adjustment mode menu ]================================================+
|                                                                           |
| quit: Quit Tool                        help: Display Help Menu            |
|                                                                           |
| << SV >>                               << RF >>                           |
|  1: SV check                           51: RF PB all adjust (DTF-2)       |
|                                        52: RF PB all adjust (DTF-1)       |
|                                        53: RF error rate (DTF-2 PB Align) |
|                                        54: RF error rate (DTF-2 REC confi)|
|                                        55: RF error rate (DTF-2 REC/PB)   |
|                                        56: RF error rate (DTF-1 PB Align) |
|                                        58: RF data save                   |
|                                                                           |
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ADJ=>
```

Display Help Menu Execution Screen

5-9-3. HELP 2

Function: Displays the second menu of the ADJ mode.
Operation: Enter "help2 ↵".

```
ADJ=> help2↵

+===[ Adjustment mode menu ]================================================+
|                                                                           |
| quit: Quit Tool                        help: Display Help Menu            |
|                                                                           |
| << SV >>                               << RF >>                           |
|  1: SV check                           51: RF PB all adjust (DTF-2)       |
|  2: All motors, tension sensors adj.   52: RF PB all adjust (DTF-1)       |
|  3: Auto PG adjust                     53: RF error rate (DTF-2 PB Align) |
|                                        54: RF error rate (DTF-2 REC confi)|
|                                        55: RF error rate (DTF-2 REC/PB)   |
|                                        56: RF error rate (DTF-1 PB Align) |
|                                        57: RF ATF amp gain adjust         |
|                                        58: RF data save                   |
|                                                                           |
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ADJ=>
```

HELP2 Execution Screen

5-9-4. SV Check

Function: Checks servo.
Operation: Enter "1 ↵".

```
ADJ=>1↵

SV check...OK

Checking...

ADJ=>
```

SV Check Execution Screen

When the check ends normally, "OK" will be displayed.
If it ends in an error, a message corresponding to the error will be displayed.
For details on messages, refer to Section 5-9-15.

5-9-5. ALL Motors, Tension Sensors Adj

Enter "2↵" after the prompt "ADJ=>" at the ADJ mode menu.

```
ADJ=>2↵
All motors, tension sensors adj...
Adjusting...
OK
```

When the adjustment ends normally, "OK" will be displayed.
If it ends in an error, a message corresponding to the error will be displayed.
For details on messages displayed, refer to Section 5-9-15.
If the adjustment ends normally, the adjustment value will be automatically saved.

5-9-6. Auto PG Adjust

Load an alignment tape YR2-1A.
Enter "3↵" after the prompt "ADJ=>" at the ADJ mode menu.

```
ADJ=>3↵
Auto PG adj...
Adjusting...
OK
```

When the adjustment ends normally, "OK" will be displayed.
If it ends in an error, a message corresponding to the error will be displayed.
For details on messages displayed, refer to "5-9-15. ADJ Mode Error Message".
If the adjustment ends normally, the adjustment value will be automatically saved.

5-9-7. RP PB All Adjust (DTF-2)

Function: Continuously executes automatic adjustment in the DTF-2 mode of the RF playback block.

Operation:

(1) Enter "51↵".
The following message is displayed.

```
DTF-2 RF PB all adjust...
Insert DTF-2 alignment tape...
```

(2) Load an alignment tape (YR5-1A) into the unit.
- Proper adjustments cannot be performed with the other tapes.
- For the tape address used for the adjustment, the unit will select the appropriate position automatically.

(3) When the tape is loaded, the following message will be displayed and the adjustment will start automatically.

```
Adjusting...
```

(4) If the adjustment is successful, the screen displays "Adjust complete".
If the adjustment fails, the following message will be displayed according to the cause.
- If the adjustment could not be performed due to some reason, "Adjust incomplete" will be displayed.
- If the adjustment results were not satisfactory in the check of the error rate after the adjustment, "Error rate check fail" will be displayed.

(5) To memorize the adjustment data in the NV-RAM (nonvolatile memory), execute 58 (RF data save).
- The DTF-2 and DTF-1 adjustment data are separate.

To memorize the DTF-2 adjustment data, after executing 51 (PB all adjust), be sure to execute 58 (RF data save).

Example of execution:

- When adjustments are successful

```
ADJ=>51↵
DTF-2 RF PB all adjust...
Insert DTF-2 alignment tape...
Adjusting...Adjust complete

ADJ=>
```

- When adjustments failed (When error rate check results were unsatisfactory)

```
ADJ=>51↵
DTF-2 RF PB all adjust...
Insert DTF-2 alignment tape...
Adjusting...Error rate check fail

ADJ=>
```

5-9-8. RF PB All Adjust (DTF-1)

Function: Continuously executes automatic adjustment in the DTF-1 mode of the RF playback block.

Operation:

(1) Enter "52↵".
The following message is displayed.

```
DTF-1 RF PB all adjust...
Insert DTF-1 alignment tape...
```

(2) Load an alignment tape (YR5-1) into the unit.
- Proper adjustments cannot be performed with the other tapes.
- For the tape address used for the adjustment, the unit will select the appropriate position automatically.

(3) When the tape is loaded, the following message will be displayed and the adjustment will start automatically.

```
Adjusting...
```

(4) If the adjustment is successful, the screen displays "Adjust complete".
If the adjustment fails, the following message will be displayed according to the cause.
- If the adjustment could not be performed due to some reason, "Adjust incomplete" will be displayed.
- If the adjustment results were not satisfactory in the check of the error rate after the adjustment, "Error rate check fail" will be displayed.

(5) To memorize the adjustment data in the NV-RAM (nonvolatile memory), execute 58 (RF data save).
- The DTF-2 and DTF-1 adjustment data are separate.

To record the DTF-1 adjustment data, after executing 52 (PB all adjust), be sure to execute 58 (RF data save).

Example of execution:

- When adjustment is successful

```
ADJ=>52↵
DTF-1 RF PB all adjust...
Insert DTF-1 alignment tape...
Adjusting...Adjust complete

ADJ=>
```

- When adjustment failed (When error rate check results were unsatisfactory)

```
ADJ=>52↵
DTF-1 RF PB all adjust...
Insert DTF-1 alignment tape...
Adjusting...Error rate check fail

ADJ=>
```

5-9-9. RF Error Rate (DTF-2 PB Align)

Function: Checks the playback error rate using the RF alignment tape (DTF-2).

Operation:

(1) Enter "53↵".
The following message is displayed.

```
RF error count (DTF-2 PB Alignment tape)...
Insert DTF-2 alignment tape...
```

(2) Load an alignment tape (YR5-1A) into the unit.
- The error rate cannot be checked properly with the other tapes.
- For the tape address used for the check, the unit will select the appropriate position automatically.

(3) When the tape is loaded, the following message will be displayed and the check will start automatically.

```
Checking...
```

(4) If the check results are satisfactory, "OK" will be displayed on the screen.
If the check results are not satisfactory, "Error rate check fail" will be displayed.

Example of execution:

- When the check results are satisfactory

```
ADJ=>53↵
RF error count (DTF-2 PB Alignment tape)...
Insert DTF-2 alignment tape...
Checking...OK

ADJ=>
```

- When the check results were unsatisfactory

```
ADJ=>53↵
RF error count (DTF-2 PB Alignment tape)...
Insert DTF-2 alignment tape...
Checking...Error rate check fail

ADJ=>
```

5-9-10. RF Error Rate (DTF-2 REC confi)

Function: Checks the error rate of RF system during recording.

Operation:

(1) Enter "54↵".
The following message is displayed.

```
RF error count (DTF-2 REC confi)...
Insert DTF-2 blank tape...
```

(2) Load an alignment tape (DTF-2) into the unit.
- Check that the cassette is not in REC INHIBIT.
- For the tape address used for the check, the unit will select the appropriate position automatically.

(3) When the tape is loaded, the following message will be displayed and the check will start automatically.

```
Checking...
```

(4) If the check results are satisfactory, "OK" will be displayed on the screen.
If the check results are not satisfactory, "Error rate check fail" will be displayed.

Example of execution:

- When the check results are satisfactory

```
ADJ=>54↵
RF error count (DTF-2 REC confi)...
Insert DTF-2 blank tape...
Checking...OK

ADJ=>
```

- When the check results were unsatisfactory

```
ADJ=>54↵
RF error count (DTF-2 REC confi)...
Insert DTF-2 blank tape...
Checking...Error rate check fail

ADJ=>
```

5-9-11. RF Error Rate (DTF-2 REC/PB)

Function: Checks the playback error rate using the self recorded tape.

Operation:

(1) Enter "55↵".
The following message is displayed.

```
RF error count (DTF-2 Self REC/PB)...
Insert DTF-2 blank tape...
```

(2) Load an alignment tape (DTF-2) into the unit.
- Check that the cassette is not in REC INHIBIT.
- For the tape address used for the check, the unit will select the appropriate position automatically.

(3) When the tape is loaded, the following message will be displayed and the check will start automatically.

```
Checking...
```

(4) If the check results are satisfactory, "OK" will be displayed on the screen.
If the check results are not satisfactory, "Error rate check fail" will be displayed.

Example of execution:

- When the check results are satisfactory

```
ADJ=>55↵
RF error count (DTF-2 Self REC/PB)...
Insert DTF-2 blank tape...
Checking...OK

ADJ=>
```

- When the check results were unsatisfactory

```
ADJ=>55↵
RF error count (DTF-2 Self REC/PB)...
Insert DTF-2 blank tape...
Checking...Error rate check fail

ADJ=>
```

5-9-12. RF Error Rate (DTF-1 PB Align)

Function: Checks the playback error rate using the RF alignment tape (DTF-1).

Operation:

(1) Enter "56↵".
The following message is displayed.

```
RF error count (DTF-1 PB Alignment tape)...
Insert DTF-1 alignment tape...
```

(2) Load an alignment tape (YR5-1) into the unit.
- The error rate cannot be checked properly with the other tapes.
- For the tape address used for the check, the unit will select the appropriate position automatically.

(3) When the tape is loaded, the following message will be displayed and the check will start automatically.

```
Checking...
```

(4) If the check results are satisfactory, "OK" will be displayed on the screen.
If the check results are not satisfactory, "Error rate check fail" will be displayed.

Example of execution:

- When the check results are satisfactory

```
ADJ=>56↵
RF error count (DTF-1 PB Alignment tape)...
Insert DTF-1 alignment tape...
Checking...OK

ADJ=>
```

- When the check results were unsatisfactory

```
ADJ=>56↵
RF error count (DTF-1 PB Alignment tape)...
Insert DTF-1 alignment tape...
Checking...Error rate check fail

ADJ=>
```

5-9-13. RF ATF Amp Gain Adjust

Function: Adjusts the ATF amplifier gain.
Operation: Enter "57↵".

```
ADJ=>57↵
RF ATF amp gain adjust...OK

ADJ=>
```

RF ATF Amplifier Gain Adjust Execution Screen

5-9-14. RF Data Save

Function: Saves RF adjustment data in the NV-RAM of the DPR-160 board.
Operation:
(1) Enter "58↵".
The following message is displayed.

```
RF data save...
Are you sure (Y:yes/N:no) =>
```

(2) To save the data, enter "y↵". If the data need not be saved, enter "n↵".
(3) When "y↵" is entered, the following will be displayed.

```
Saving...
```

Note
Never turn OFF the power of the unit while data is being saved, otherwise the RF adjustment data will be damaged.

(4) When the data is saved, "OK" will be displayed.
Example of execution:

```
ADJ=>58↵
RF data save...
Are you sure (Y:yes/N:no) =>y

Saving...OK

ADJ=>
```

5-9-15. ADJ Mode Error Message

Error Message	Details
S reel FG error	S reel FG duty check results were unsatisfactory
S reel PG error	S reel PG for S reel FG teeth number diagnosis not output
S reel FG number error	S reel FG teeth number was abnormal
S reel FG exception error	Unexpected state occurred such as a cassette was loaded during S reel diagnosis
T reel FG error	T reel FG duty check results were unsatisfactory
T reel PG error	T reel PG for T reel FG teeth number diagnosis not output
T reel FG number error	T reel FG teeth number was abnormal
T reel FG exception error	Unexpected state occurred such as a cassette was loaded during T reel diagnosis
Capstan FG error	Capstan FG check results were unsatisfactory
Capstan FG exception error	Unexpected state occurred such as a cassette was loaded during capstan FG check
S tension sensor error	S tension system check results were unsatisfactory
S tension sensor exception error	Unexpected state occurred such as a cassette was loaded during S tension check
T tension sensor error	T tension check results were unsatisfactory
T tension sensor exception error	Unexpected state occurred such as a cassette was loaded during T tension check
Auto PG error	Failed in PG automatic adjustment
Auto PG signal detect error	Could not detect signals required for PG automatic adjustment
Auto PG timeout error	PG automatic adjustment ended in timeout
Auto PG exception error	PG automatic adjustment was not possible
S reel voltage check error	S reel motor terminal voltage check results were unsatisfactory
S reel voltage check exception error	Unexpected state occurred such as a cassette was loaded during S reel motor terminal voltage check
T reel voltage check error	T reel motor terminal voltage check results were unsatisfactory
T reel voltage check exception error	Unexpected state occurred such as a cassette was loaded during T reel motor terminal voltage check
Drum jitter check error	Drum jitter check results were unsatisfactory
Drum jitter check exception error	Unexpected state occurred such as a cassette was loaded during drum jitter check
Sat check error	SAT operation check error
Sat check timeout error	SAT operation check ended in timeout
Sat check Correlation error	Abnormal relation between SAT signal and tracking control
Sat signal Over Measure Range error	SAT signal exceeded measurement range
Sat check exception error	Unexpected state occurred during SAT operation check
Atf check error	ATF operation check error
Atf check timeout error	ATF operation check ended in timeout
Atf check correlation error	Abnormal correlation of ATF signal
Atf Tracon error	Tracking control value too large in servo lock state
Atf check exception error	Unexpected state occurred during ATF operation check

5-10. SETUP Mode

This mode is used for performing various settings.
The SETUP mode is set by entering "SETUP↵" from the maintenance terminal. The message "SETUP=>" will be displayed as the prompt. Enter the command number (or command) after this prompt and press ↵. The command will be executed.
Entering "quit↵" after this prompt terminates the SETUP mode.

Note

The SETUP mode cannot be activated from the other mode. To activate the SETUP mode, terminate the current mode first.

```
setup=>help↵
+===[ Setup menu ]=========================================================+
|                                                                           |
| quit   : Quit tool                  help   : Display Help menu            |
|                                                                           |
|  1 : Setup information set           2 : Setup information display        |
|  3 : Default setup information set                                        |
|                                                                           |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+
SETUP=>
```

Setup Execution Screen

5-10-1. Quit Tool

Function: Exits the SETUP mode and returns to the maintenance mode.
Operation: Enter "quit↵".

5-10-2. Display Help Menu

Function: Displays the SETUP mode menu.
Operation: Enter "help↵".

```
setup=>help↵
+===[ Setup menu ]=========================================================+
|                                                                           |
| quit   : Quit tool                  help   : Display Help menu            |
|                                                                           |
|  1 : Setup information set           2 : Setup information display        |
|  3 : Default setup information set                                        |
|                                                                           |
+=====================================[ Copyright (c) 2000 Sony Corp. ]===+
SETUP=>
```

Display Help Menu Execution Screen

5-10-3. Setup Information Set

Function: Sets the setup data.
Operation: Enter "1 ↵".

The screen will prompt for the setting value. Enter a setting value for each item, and press ↵.
Pressing only ↵ does not change the current value.
(The current value is displayed in the [ ].)
At the end, a message to confirm whether to set the value entered will be displayed. Entering "y ↵" sets the values. Entering "n ↵" cancels the setting.

```
SETUP=> 1↵

*****[ SETUP INFORMATION SET ]************************
SCSI ID (0-15)                          [5]                 =>6↵
IP address (0-255 each)                 [127.  0.  0.  1]   =>43.25.84.198↵
Subnet mask (0-255 each)                [255.255.255.  0]   =>255.255.0.0↵
Gateway address (0-255 each)            [ 0.  0.  0.  0]    =>0.0.0.255↵
Unload mode (0:NORMAL/1:FAST)           [1]                 =>↵
Auto load mode (0:OFF/1:ON)             [1]                 =>0↵
Fast unload location (0:NORMAL/1:TOP)   [0]                 =>↵
Auto format mode (0:OFF/1:ON)           [0]                 =>1↵
On the halfway (0:OFF/1:ON)             [0]                 =>↵
Compression mode (0:SCSI/1:ON/2:OFF)    [0]                 =>↵

Are you sure? (Y:yes/N:no) => y↵

SETUP=>
```

Setup Information Set Execution Screen

1. SCSI ID

Function: Sets the SCSI ID.
Setting: Value between 0 and 15 is acceptable.

2. IP address

Function: Sets the ID address.
Setting: The area is divided into four blocks. Value between 0 and 255 is acceptable for each of the four blocks.
Enter "." between each block.

3. Subnet mask

Function: Sets the subnet mask.
Setting: The area is divided into four blocks. Value between 0 and 255 is acceptable for each of the four blocks.
Enter "." between each block.

4. Gateway address

Function: Sets the gateway address.
Setting: The area is divided into four blocks. Value between 0 and 255 is acceptable for each of the four blocks.
Enter "." between each block.

5. Unload mode

Function: Sets the unload mode.
Setting: 0: Normal unload mode
1: Fast unload mode

6. Auto load mode

Function: Sets the load mode.
Setting: 0: Manual load mode
1: Auto load mode

7. Fast unload location

Function: Sets the tape position after unloading in the fast unload mode.
Setting: 0: Normal
1: Tape beginning

8. Auto format mode

Function: Sets the format mode.
Setting: 0: Manual format mode
1: Auto format mode

9. On the halfway

Function: Sets on-the-halfway
Setting: 0: Invalid
1: Valid

10. Compression mode

Function: Sets the compression mode.
Setting: 0: Setting with the SCSI command is valid
1: Compression mode
2: Normal mode

5-10-4. Setup Information Display

Function: Displays all current setup values.
Operation: Enter "2↵".

```
SETUP=> 2↵

*****[SETUP INFORMATION DISPLAY]************************
SCSI ID (0-15)                          : [5]
IP address (0-255 each)                 : [127.  0.  0.  1]
Subnet mask (0-255 each)                : [255.255.255.  0]
Gateway address (0-255 each)            : [  0.  0.  0.  0]
Unload mode (0:NORMAL/1:FAST)           : [1]
Auto load mode (0:OFF/1:ON)             : [1]
Fast unload location (0:NORMAL/1:TOP)   : [0]
Auto format mode (0:OFF/1:ON)           : [0]
On the halfway (0:OFF/1:ON)             : [0]
Compression mode (0:SCSI/1:ON/2:OFF)    : [0]


SETUP=>
```

Setup Information Display Execution Screen

5-10-5. Default Setup Information Set

Function: Sets the default values of the setup data.
Operation: Enter "3↵".

The value in [ ] shows the currently set value while the default value to be set is shown after "=>".
At the end, a confirmation message will be displayed. To set the default value, enter "y↵". To cancel the setting, enter "n↵".

```
SETUP=>3↵

SCSI ID (0-15)                          [5]                 => 5
IP address (0-255 each)                 [127.  0.  0.  1]   => 127.0.0.1
Subnet mask (0-255 each)                [255.255.255.  0]   => 255.255.255.0
Gateway address (0-255 each)            [ 0.  0.  0.  0]    => 0.0.0.0
Unload mode (0:NORMAL/1:FAST)           [1]                 => 1
Auto load mode (0:OFF/1:ON)             [1]                 => 1
Fast unload location (0:NORMAL/1:TOP)   [0]                 => 0
Auto format mode (0:OFF/1:ON)           [0]                 => 0
On the halfway (0:OFF/1:ON)             [0]                 => 0
Compression mode (0:SCSI/1:ON/2:OFF)    [0]                 => 0

Are you sure? (Y:yes/N:no) => y↵


SETUP=>
```

Default Setup Information Set Execution Screen

Default Values of Each Item

- SCSI ID: 5
- IP address: 127.0.0.1
- Subnet mask: 255.255.255.0
- Gateway address: 0.0.0.0
- Unload mode: FAST
- Auto load mode: ON
- Fast unload location: NORMAL
- Auto format mode: OFF
- On the halfway: OFF
- Compression mode: SCSI

5-11. THRU Mode

This mode is used for connecting and controlling the FMT CPU, SYS CPU and SV CPU.
The THRU mode is set by entering "THRU↵" from the maintenance terminal.
The message "Select Cpu (1:FMT/2:SYS/3:SV/q:quit)=>" will be displayed as the prompt.
Enter the command number (or command) after this prompt and press ↵. The command will be executed.
Entering "q↵" after this prompt terminates the THRU mode.

Note

The THRU mode cannot be activated from the other mode.
To activate the THRU mode, terminate the current mode first.

```
THRU↵
<< Through Mode >>

Select Cpu (1:FMT/2:SYS/3:SV/q:quit) =>
```

THRU Mode Execution Screen

5-11-1. Quit Tool

Function: Exits the THRU mode and returns to the maintenance mode.
Operation: Enter "q↵".

5-11-2. FMT CPU

Function: Connects to the FMT CPU.
Operation: Operation: Enter "1↵".

The processing after connection follows the maintenance specifications of the FMT CPU.
Entering "quit↵" before setting the FMT CPU maintenance menu returns to the prompt display screen of the THRU mode.

```
Select Cpu (1:FMT/2:SYS/3:SV/q:quit) => 1↵
```

FMT CPU Execution Screen

5-11-3. SYS CPU

Function: Connects to the SYS CPU.
Operation: Operation: Enter "2↵".

The processing after connection follows the maintenance specifications of the SYS CPU.
Entering "quit↵" before setting the SYS CPU maintenance menu returns to the prompt display screen of the THRU mode.

```
Select Cpu (1:FMT/2:SYS/3:SV/q:quit) => 2↵
```

SYS CPU Execution Screen

5-11-4. SV CPU

Function: Connects to the SV CPU.
Operation: Enter "3↵".

The processing after connection follows the maintenance specifications of the SV CPU.
Entering "q↵" before setting the SV CPU maintenance menu returns to the prompt display screen of the THRU mode.

```
Select Cpu (1:FMT/2:SYS/3:SV/q:quit) => 3↵
```

SV CPU Execution Screen

5-12. DEF Mode

This mode is used for default settings of the NVRAM.
The DEF mode is set by entering "def↵" from the maintenance terminal.
The message "DEF↵" will be displayed as the prompt.
Enter the command number (or command) after this prompt and press ↵. The command will be executed.
Entering "quit↵" after this prompt terminates the DEF mode

Note

The DEF mode cannot be activated from the other mode.
To activate the DEF mode, terminate the current mode first.

```
def↵
+===[ NVRAM default set menu ]=============================================+
|                                                                          |
| quit   : Quit tool                    help   : Display Help menu         |
|                                                                          |
|  1 : NVRAM default set for GY          2 : NVRAM default set for DIR     |
|                                                                          |
+====================================[ Copyright (c) 2000 Sony Corp. ]===+

DEF=>
```

DEF Mode Execution Screen

5-12-1. Quit Tool

Function: Exits the DEF mode and returns to the maintenance mode.
Operation: Enter "quit↵".

5-12-2. Display Help Menu

Function: Displays the DEF mode menu.
Operation: Enter "help↵".

5-12-3. NVRAM Default Set for GY

Function: Sets the NVRAM value to the GY default value.
Operation: Enter "1↵".

All default values will be displayed, and at the end, a confirmation message will be displayed. To set the default value, enter "y↵". To cancel the setting, enter "n↵".

Note

Settings are effective after the GY-8240 is restarted. After setting this mode, be sure to turn off and then on the power.

```
DEF=>1↵
*****[ GY DEFAULT INFORMATION SET ]*********************
Cleaning (hours)                          [50]                  => 50      ↵
Maintenance-1 (hours)                     [1000]                => 1000    ↵
LCD contrast value                        [160]                 => 160     ↵
Vendor ID (0-99999999)                    [0]                   => 0       ↵
Vendor name (8 characters)                [SONY    ]            => SONY    ↵
Vendor ROM version (4 characters)         [1.00]                => 1.00    ↵
Machine name (16 characters)              [GY-8240         ]    => GY-8240 ↵
Interface (0:SCSI-WD/1:SCSI-WS/2:SCSI-UWD/3:SCSI-LVD/8:Fibrechannel/12:VRP)
                                          [2]                   => 2       ↵
Series (0:GY-10/1:GY-2120/2:GY-8240/3:DIR-240/4:DIR-120/5:EVALUATOR)
                                          [2]                   => 2       ↵
SCSI ID (0-15)                            [5]                   => 5       ↵
IP address (0-255 each)                   [ 43. 25. 84.198]     => 127.0.0.1↵
Subnet mask (0-255 each)                  [255.255.  0.  0]     => 255.255.255.0↵
Gateway address (0-255 each)              [  0.  0.  0.  0]     => 0.0.0.0↵
Unload mode (0:NORMAL/1:FAST)             [1]                   => 1       ↵
Auto load mode (0:OFF/1:ON)               [1]                   => 1       ↵
Fast unload location (0:NORMAL/1:TOP)     [0]                   => 0       ↵
Auto format mode (0:OFF/1:ON)             [0]                   => 0       ↵
On the halfway (0:OFF/1:ON)               [0]                   => 0       ↵
Compression mode (0:SCSI/1:ON/2:OFF)      [0]                   => 0       ↵
Option 1 port  speed(bps) (0:4800/1:9600/2:19200/3:38400)
                                          [3]                   => 3       ↵
Option 2 port  speed(bps) (0:4800/1:9600/2:19200/3:38400)
                                          [1]                   => 1       ↵
BT bit ignore mode (0:OFF/1:ON)           [0]                   => 0       ↵
PetaServe mode (0:OFF/1:ON)               [0]                   => 0       ↵
Report early-warning mode (0:OFF/1:ON)    [0]                   => 0       ↵
Manual cleaning mode (0:OFF/1:ON)         [0]                   => 0       ↵
Manual Eject mode (0:OFF/1:ON)            [0]                   => 0       ↵
Inquiry source version (0:ROM/1:CUSTOM)   [0]                   => 0       ↵

Are you sure? (Y:yes/N:no) => y↵

DEF=>
```

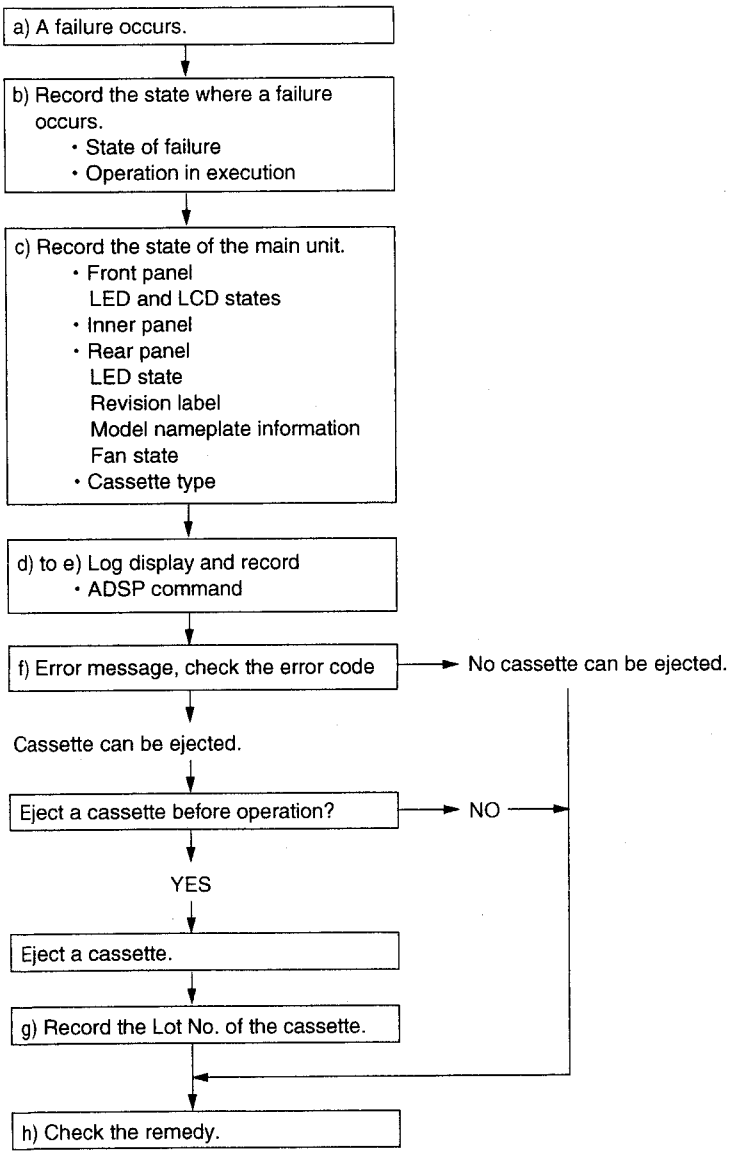
NVRAM Default Set for GY Execution Screen

5-13. Troubleshooting

When the GY-8240 detects errors during normal operations, it displays error messages and error codes on the LCD.
This section describes the error messages, error codes, and solutions when errors occur.

5-13-1. Outline

When problems occur in the GY-8240, perform the following procedure, and devise countermeasures.


a) A failure occurs.
b) Record the state where a failure occurs.
• State of failure
• Operation in execution
c) Record the state of the main unit.
• Front panel
LED and LCD states
• Inner panel
• Rear panel
LED state
Revision label
Model nameplate information
Fan state
• Cassette type
d) to e) Log display and record
• ADSP command
f) Error message, check the error code
No cassette can be ejected.
Cassette can be ejected.
Eject a cassette before operation?
NO
YES
Eject a cassette.
g) Record the Lot No. of the cassette.
h) Check the remedy.

The following describes the specific procedure.

a) Confirm the problem occurred.

b) Record the type of problem which occurred in which operation.

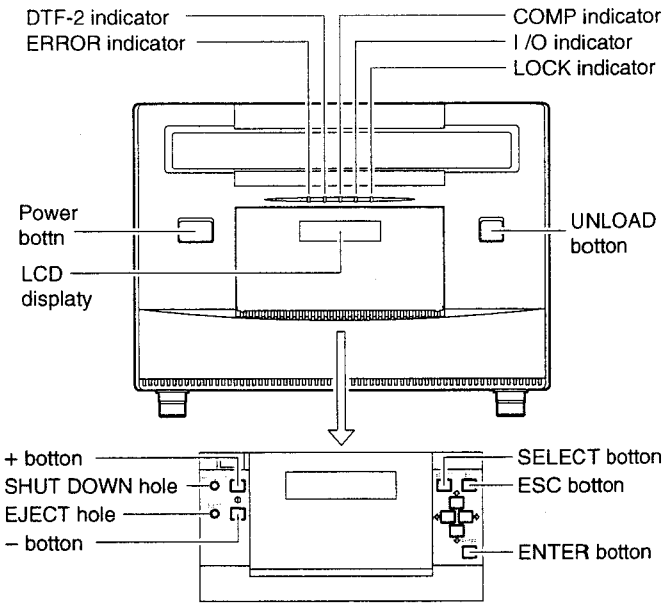
- Operations having been performed
- Symptoms of problem

c) Record the state of the unit.

<Front panel>

- Indicator (LED) state
  - ∗ ERROR indicator (red)
    ☐ Lit ☐ Off
  - ∗ COMP indicator (orange)
    ☐ Lit ☐ Off
  - ∗ I/O indicator (green)
    ☐ Lit ☐ Blinking ☐ Off
  - ∗ LOCK indicator (orange)
    ☐ Lit ☐ Off
  - ∗ DTF-2 indicator (green)
    ☐ Lit ☐ Off
- State of display (LCD) <16 digits × 2 lines>
- Characters displayed <Information>
- Inserted cassette type
  DTF-2 L cassette (GW2-200GL), S cassette (GW2-60GS)
  DTF-1 L cassette (GW-730L), S cassette (GW-240S)
  DIR L cassette (DI-250GL), S cassette (DI-74GS)

Front panel

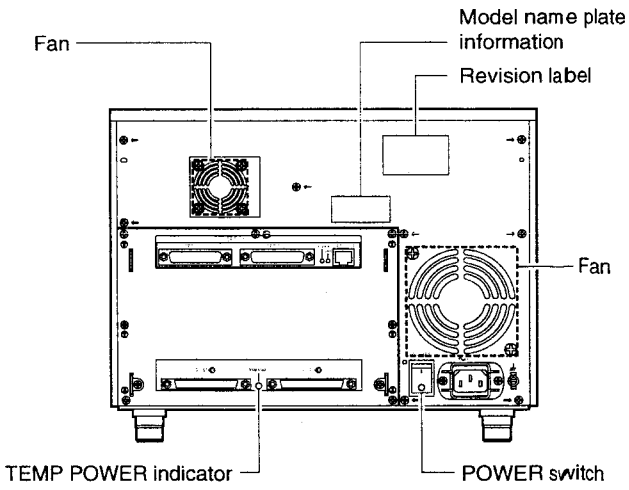


If the cassette was removed in step f), write down the lot number on the back of the cassette.

<Rear panel>

- ∗ TERM POWER indicator
  ☐ Lit ☐ Off
- ∗ Information on revision label
  Total revision of firmware and hardware respectively
- ∗ Information of the model number label
  - Serial number of unit
  - Model number
- ∗ Fan state
  Operating state

Rear panel



<System>

- Place
- Model number of host computer
- Type and version of OS
- Name and version of application software
- Operation performed using the application software
- Log information of the application software
- Connected state of cable/terminator
- If the network is connected, the state

d) Record the log

1. Refer to Section 5-1-1, and connect with the personal computer (PC).
   Note
   Refer to Section 5-8 for details of the GY-8240 communication baud rate setting display.

2. Refer Section 5-6, and display the log.
   Necessary log: Upload command "ADSP".

e) Save the log contents

Note

For details on saving data in the floppy disk or PC (hard disk), follow the procedure for the terminal emulator software installed in the PC.

f) Remove the cassette.

If the cassette is going to be removed to protect the tape, check the error message (Refer to Section 5-13-4) and error code on the display (LCD) to determine if the cassette can be removed.
For details on removing the cassette, refer to the section on operations (cassette removal and loading-emergency ejection) in the operation manual.

1. If the cassette can be removed
   Error codes where the cassette can be removed by emergency ejection are error numbers other than those in the 3000 range.
2. If the cassette cannot be removed
   For error codes in the 3000 range, do not remove the cassette as the tape may damage.
   Take note that turning off and then on the power may damage the tape. (Refer to section 5-13-5.)

g) Write down the cassette lot number

Check the error code, and in case to have removed the cassette, write down the lot number at the back of the cassette.

h) Confirm the countermeasure

Refer to section 5-14, and confirm the countermeasure according to the error message and error code displayed on the display (LCD) on the front panel.

5-13-2. Acquiring logs

If errors occur in the GY-8240 during normal operations, and the GY-8240 stops, check the state when the error occurred, and record all logs.

Note

Some information may be lost when the power is turned off while recording logs. In addition, operations performed to correct the error may also change the log contents in some cases.
Therefore record all logs before turning off the power and operating the unit.
(Unlike the GY-2120, operations of the unit and SCSI response will not stop in the GY-8240 while logs are recorded.)

<Procedure for acquiring logs>

1. Connect the PC/workstation and GY-8240 OPTION-1 port. (Refer to section 5-1-1.)
2. Set the communication procedure
   - Communication baud rate: 38400 [bit/s]
   - Character length: 8 [bit]
   - Stop bit: 1 [bit]
   - Parity: None
   - Flow control: None

   Note

   When the screen saver or power management is operating, some log data may not be recorded.
   Therefore set the standby time to execute the screen saver or power management to more than 30 minutes.
   With the communication rate of 38400 bit/s, some data may not be recorded for some PCs and workstations.

3. Check the ROM version
   Set the PC/workstation to the ROM mode, and check the firmware version.
   (Refer to section 5-7 on the ROM mode.)

```
ROM↵
***  [ ROM VERSION DISPLAY ]  ***

[FW Rev]  1.00

[FMT]     01.00.00
[SYS]     01.00.00
[IF]      01.00.00
[SV1]     01.00.00
[SV2]     01.00.00
[DSP]     01.00.00
[ISP]     01.00.00
```

4. Acquire the logs. (Refer to section 5-6 on the LOG mode.)
   a. Set the PC/workstation to the LOG acquisition mode. (Refer to section 5-6 LOG mode.)
   b. Refer to the capture on the text to be transferred, and select the capture file.
      (For Tera Term Pro)
      File: Log: (Specify file name) Example: 000825-012345-1123. log
      Date / S/N of set / Error code
   c. When the command "adsp↵" is entered on the PC, the logs of all CPUs will automatically be acquired.

[Logs are displayed for more than ten minutes]

```
59  00001025  Maintenance Monitor Used  0009C
        Command[9] fLoad[1] fActMode[0] Rsv[0]
60  00001200  Maintenance Monitor Used  0009C
        Command[4] fLoad[1] fActMode[0] Rsv[0]
61  00015576  Maintenance Monitor Used  0009D
        Command[9] fLoad[1] fActMode[0] Rsv[0]
62  00015786  Maintenance Monitor Used  0009D
        Command[2] fLoad[312E3030] fActMode[41300104] Rsv[0]
63  0001867D  Maintenance Monitor Used  0009D
        Command[9] fLoad[1] fActMode[0] Rsv[0]
64  00018AEE  Maintenance Monitor Used  0009D
        Command[2] fLoad[312E3030] fActMode[41300104] Rsv[0]
>>>>>>>>>>>>>>>>>>>[Serial LOG ]<<<<<<<<<<<<<<<<<<<
```

   d. After logs have been updated, entering "quit↵" following the prompt "LOG=>" ends the LOG acquisition mode of the PC/workstation.
      For the Windows95 hyper terminal, after the quit command is executed, data transfer and text capture are stopped.

5-13-3. Using the Self-Diagnosis Mode

The following describes troubleshooting using the GY-8240 self-diagnosis function.

Note

When this mode is set, normal operations of the unit are stopped, and the unit must be reset at the end. Be sure to check the system (host computer connected) is not affected before executing this mode.

1. Connecting the PC/workstation

a. Turn OFF the power of the GY-8240 and PC/workstation.
b. Connect the PC/workstation to the OPTION1 and OPTION2 ports on the rear of the GY-8240.
For details on pin assignment of the connector and connected connectors, refer to section 1-5.

2. Activating the self-diagnosis mode

a. After activating the terminal emulator software of the PC/workstation, turn ON the power of the GY-8240.
b. When "DIAG ⏎" is entered from the PC/workstation, the prompt "DIAG=>" will be displayed.
   - If the prompt is not displayed, check the setting (terminal side) and connection of the RS-232C port.
     If the setting and connection of the RS-232C port is normal, replace the IF board and then the FM board.
   - Entering "HELP ⏎" displays the menu contents.

3. Executing all check

a. Entering "1 ⏎" as the menu number executes all checks which can be performed automatically in the self-diagnosis, and displays the results.
b. If the check results are unsatisfactory, refer to the self-diagnosis results code and list of countermeasures in section 5-13-6 and perform the appropriate countermeasure.

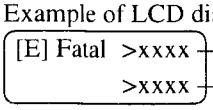
4. Ending the self-diagnosis mode

Entering "quit ⏎" ends the self-diagnosis mode.

5-13-4. Error Messages

When the GY-8240 detects errors during normal operations, it displays error messages on the LCD.

Example of LCD display



Major error code ····· Indicates the error contents.
Minor error code ···· Indicates details of the major error code.
(0000 means no details)

For contents of the error code, refer to "5-13-5 Error Codes and List of Countermeasures" regardless of whether the code is major or minor.

Message		Details
Format?		Attempted to load an unformatted cassette → process according to "Formatting (DTF)" (refer to page 16 of the Operation Manual).
Memory Check Err		Memory check error occurred at start
Recover?		Attempted to load an incorrectly unloaded tape → process according to "Recovery (DTF)" (refer to page 16 of the Operation Manual).
[E] Blk Tbl	>xxxx >xxxx	Block control table is damaged
[E] Cp Write	>xxxx >xxxx	Error occurred while copying or writing to the tape
[E] Cp Read	>xxxx >xxxx	Error occurred while copying or writing from the tape
[E] Data IN	>xxxx >xxxx	Data-in-phase of SCSI protocol was interrupted
[E] Data OUT	>xxxx >xxxx	Data-out-phase of SCSI protocol was interrupted
[E] Drive	>xxxx >xxxx	Other errors occurred
[E] Fatal	>xxxx >xxxx	Fatal error occurred (System error occurred)
[E] Flush	>xxxx >xxxx	Error occurred while writing all data in buffer to tape
[E] Format	>xxxx >xxxx	Failed in formatting (DTF)
[E] Initialize a)	>xxxx >xxxx	Some error occurred while starting system
[E] Load	>xxxx >xxxx	Failed in loading (DTF)
[E] Mng Tbl	>xxxx >xxxx	Management table is full
[E] Parity	>xxxx >xxxx	Parity error of memory occurred
[E] PreWrite	>xxxx >xxxx	Error occurred in writing preparations
[E] Read	>xxxx >xxxx	Error occurred during reading
[E] Recover	>xxxx >xxxx	Failed in recovery (DTF)
[E] Subcode	>xxxx >xxxx	Damaged sub code area

Message		Details
[E] TeleFile	>xxxx >xxxx	Error occurred in Tele-File.
[E] Unload	>xxxx >xxxx	Failed in unloading (DTF)
[E] Vol Full	>xxxx >xxxx	Data written exceeding logical volume size
[E] Write	>xxxx >xxxx	Error occurred during writing

"xxxx" indicates the error code.

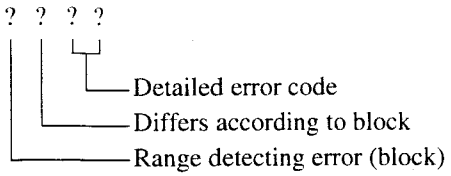
a) The second line indicates which CPU the communication error occurred in.

Example

[E] Initialize	>xxxx	Communication error between IF and SV
IF-SV	>xxxx	

5-13-5. List of Error Code and Countermeasure

When the GY-8240 detects errors during normal operations, it displays error codes on the LCD.
The error code is displayed using a 4-digit major error code and 4-digit minor error code.
The following description applies to both the major error code and minor error code.



The top character of the major error code or minor error code indicates the block with the error.

Error code	Details
0xxx	FM block
1xxx	DRV block
2xxx	SYS block
3xxx	SV block
4xxx	IF block
5xxx	DSP block
6xxx	VRP block or ISP block

The error code and details/countermeasures are shown in the following table.

Error Code	Details	Remedy
0001	Attempted to load (DTF) a tape which was not unloaded (DTF) correctly.	Perform recovery of tape.
0002	Attempted to load (DTF) uninitailized tape.	Format tape. However, DTF-1 cassette and DIR cassette cannot be formatted in GY-8240WD.
0003	SCSI bus reset was applied during SCSI sequence.	Check upper unit. Check terminator and cable.
0004	Subcode is damaged.	Replace cassette.
0005	Data-in-phase was interrupted.	Check upper unit. Check terminator and cable.
0006	Data-out-phase was interrupted.	Check upper unit. Check terminator and cable.
0007	Reached end of logical volume.	Misoperation of upper unit
0008	Block control table is damaged.	Replace cassette.
0009	Parity error occurred in SCSI bus.	Check terminator and cable.
000D	Attempted to recover (DTF) volume not reflected in VSIT.	Misoperation of upper unit
0014	PCI bus error	Replace FM-75 board or SCS-28 board.
0020	Inserted unintended cassette.	Replace cassette.
0030	Tele-File Read error	Replace cassette.
0040	Tele-File Write error	Replace cassette.
00E0	ROM update error	To update from tape, after cleaning, update ROM again.
00YY	Other errors	

Error Code	Details	Remedy
1x10	SYS block is aborted.	Check minor error code.
1x11	Not matching ID managed by DRV-CPU	Software error Replace FM-75 or CT-205 board.
1x12	SYS command timed-out.	Software error
1x13	Received operating command when no tape.	Replace FM-75 board
1x14	SV timed-out during start.	Hardware error Replace SV-205 board or FM-75 board.
1x15	Sync interruption does not occur.	Replace FM-75 board.
1x19	FMT command timed-out.	Software error. Rreplace FM-75 board.
1x1B	Command to download from FMT failed.	Hardware error. Replace FM-75 board.
1x1C	Failed in DIAG from FMT.	Check minor error code.
1x23	Uncorrected error occurred.	• Clean with cleaning cassette. • Head cleaning (Refer to "2-2-4 Cleaning the Stationary Head".) • Replace cassette. • Replace DPR-160 board. • Replace drum.
1x24	Not locked at IN point.	Check minor error code.
1x25	Lost lock occurred.	Unload and clean CTL/TC head.
1x26	Failed search.	Clean tape path.
1x27	Servo did not lock.	• Replace cassette.
1x28	IN-point-set error	• Replace CT-205 board.
1x29	ID dislocation	• Replace harness.
1x2A	LTC was abnormal at IN point.	
1x2B	Error detected in CTL/TC CONFI.	Clean CTL/TC head. Clean tape path. • Replace cassette. • Replace CT-205 board. • Replace harness.
1x39	Transfer abortion timed-out	Software error
1x3A	Data ready timed-out.	Replace FM-75 board.
1x3C	Could not read ID during READ (forward).	Unload and clean CTL/TC head. Clean tape path. • Replace cassette. • Replace CT-205 board. • Replace harness.
1x40	Parity error of W(2)/R(2)*2	Hardware error
1x41	Parity error of W(3)*2	Replace FM-75 board.
1x42	Parity error of W(4)*2	Hardware error Replace FM-75 board or DPR-160 board.
1x43	Parity error of W(5)*2	Hardware error Replace DPR-160 board.
1x44	Parity error of W(6)/R(1)*2	Hardware error Replace FM-75 board or DPR-160 board.
1x45	Correction error of EDC of W(1)*2	Hardware error Replace FM-75 board.

Continued to next page

Error Code	Details	Remedy
1x46	Fatal error of EDC of W(1)*2	Hardware error
1x47	Framing error of W(3)*2	Replace FM-75 board.
1x48	Framing error of R(1)*2	
1x49	Framing error of R(2)*2	
1x4A	CRC error of W(6)/R(1)*2	
1x4F	System fell in unoperatable state.	
1x5B	Cassette was REC-inhibited. Or attempted to write in DTF-1.	Replace FM-75 board.
1x6B	There are errors in packet of command block.	Software error
1x6C	Requested unsupported command.	Replace FM-75 board.
1x6D	Command sequence error	
1x6F	Command request in ABORT mode	
1x7B	Set in EOT during operating.	Eject and replace cassette. • Replace tape end sensor. • Replace sensor harness. • Replace SV-205 board.
1x7F	Timed-out without changing TTP status.	Eject and replace cassette.
1090	SYS command ACK waiting time-out	Software error
1091	SYS command FREE waiting time-out	Replace FM-75 board.
1092	FMT command INT waiting time-out 1	
1093	FMT command INT waiting time-out 2	
1094	FMT command INT waiting time-out 3	
1095	FMT command INT waiting time-out 4	
1xA0	Uncorrected error in Ach/Ech	• Clean with cleaning cassette.
1xA1	Uncorrected error in Ach only	• Head cleaning
1xA2	Uncorrected error in Ech only	(Refer to "2-2-4. Cleaning the Station ary Head".) • Replace cassette. • Replace DPR-160 board. • Replace drum.
1xA3	Received command after C2 over.	Software error
1xA4	Received command after IN over.	Replace FM-75 board.
1xB1	XFER ABORT INT waiting time-out 1	Software error
1xB2	XFER ABORT INT waiting time-out 2	Replace FM-75 board.
1xC0	EE up to processor of DPR-160 board failed.	Replace DPR-160 board or FM-75 board.
1xC1	EE including EQ of DPR-160 board failed.	
1xC2	EE (with CRC) up to processor of DPR-160 board failed.	Replace FM-75 board.
1xC3	EE (with CRC) including EQ of DPR-160 board failed.	
1xCF	DIAG from other FMTs failed.	Replace DPR-160 board or FM-75 board.
1xYY	Other errors	

Continued to next page

Error Code	Details	Remedy
2x01	Reached EOT during REC/PLAY.	Replace FM-75 board. Replace EOT sensor.
2x02	Received illegal command by BOT.	Replace BOT sensor. Replace harness. Replace FM-75 board.
2x03	Received illegal command by EOT	Replace EOT sensor. Replace harness. Replace FM-75 board.
2x04	Received REC command for REC-inhibited cassette.	Replace FM-75 board.
2x05	Aborted search.	Replace SV-205 board.
2x06	Attempted to shift to illegal state.	Replace FM-75 board.
2x0A	Illegal cassette	
2x10	Detected condensation.	Wait till released. Replace dew sensor.
2x14	Abnormal unit fan	Replace FAN (large).
2x15	Abnormal power supply fan	Replace FAN (small).
2x62	Detected different ID after detection of pre-IN point.	Unload and clean CTL/TC head. Clean tape path system. • Replace cassette. • Replace CT-205 board. • Replace harness.
2x63	Lost lock occurred after detection of pre-IN point.	Unload and clean CTL/TC head.
2x64	Exceeded IN-point during REC/PLAY.	Clean tape path system.
2x65	CTL abnormal section detected before detection of pre-IN point.	• Replace cassette.
2x66	Not CTL locked at pre-IN point during REC/PLAY.	• Replace CT-205 board. • Replace harness.
2x67	Not AT locked at pre-IN point during REC/PLAY.	Unload cassette, load cleaning cassette, and clean. • Replace cassette. • Replace drum. • Replace DPR-160 board. • Replace SV-205 board. • Replace harness.
2x68	Not SV locked when crash REC was executed.	Replace SV-205 board. Replace drum motor.
2x69	Detected EOT-BOT during search.	Unload and clean CTL/TC head. Clean tape path. • Replace cassette. • Replace CT-205 board. • Replace EOT and BOT sensors. • Replace harness.
2x6A	Retry-over of hunching during search	Unload and clean CTL/TC head.
2x6B	Search aborted during CTL/TC retry.	Clean tape path. • Replace cassette. • Replace CT-205 board. • Replace harness.

Continued to next page

Error Code	Details	Remedy
2x78	Fatal state of SV	Correct according to servo error code.
2x79	SV in independent mode	Replace SV-205 board, IF-780 board.
2x7B	Could not execute SV DIAG.	If cassette is inserted, unload. If cassette is not inserted, replace SV-205 board.
2x94	Abnormal communication with SV CPU	Replace SV-205 board, FM-75 board. Replace harness.
2x96	Abnormal EQ data in NVRAM on DPR-160 board	Replace DPR-160 board.
2x97	Abnormal NVRAM on DPR-160 board	
2x98	Could not write data in NVRAM on DPR-160 board.	
2x99	NVRAM write time-out on DPR-160 board	
2x9A	Abnormal temperature sensor on DPR-160 board	
2x9B	Temperature sensor on DPR-160 board outside normal range	
2xFE	Exceeded ID specified range.	Replace FM-75 board.
2xYY	Other errors	
3x03	Reel shift operation incompleted.	When emergency eject is pressed just after power is turned on, cassette can be removed.
3x04	Cassette compartment operation incompleted.	Correct according to SV error code.
3x05	Thread operation incompleted.	
3x06	Thread FG undetected.	
3x07	S and T reels are idling.	
3x08	S reel overcurrent	
3x09	T reel overcurrent	
3x0A	Capstan overcurrent	
3x0C	Detected rotation inconsistency between capstan and reel (in tape slack direction).	
3x0D	Detected rotation inconsistency between capstan and reel (in tape-cut-out direction).	
3x0E	Excessive S tension	
3x12	Drum did not lock.	
3x14	Abnormal capstan speed	
3x15	Abnormal T reel speed	
3x16	Detected rotation inconsistency of reels during threading or unthreading (in tape slack direction)	
3x17	Detected rotation inconsistency of reels during threading or unthreading (in tape-cut-out direction).	
3x1B	Undefined command	
3x1D	Incorrect positional relation among cassette compartment, threading and reel shift	
3x26	Emergency eject was pressed.	Check operations. (Do not use emergency eject other than during servicing.)
3x28	Drum overcurrent	Correct according to SV error code
3x2A	Checksum error of SV adjustment value data	
3x34	The reference signal from the FM-75 board is not detected during operating	
3xYY	Other errors	

Continued to next page

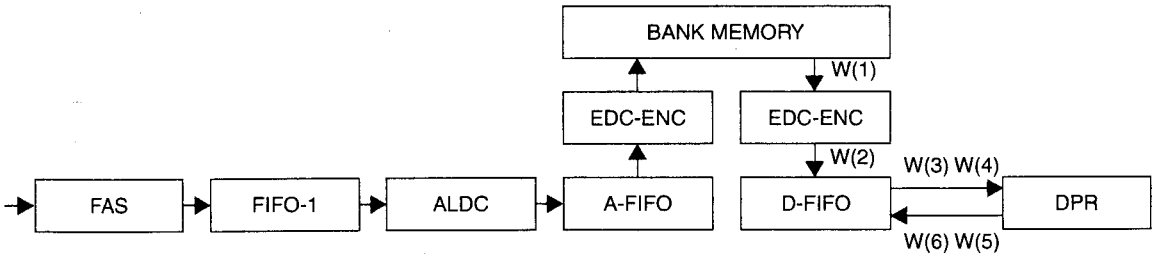
Error Code	Details	Remedy
4010	Tele-File CRC data differs from calculated value.	Recover. Replace cassette.
4011	Tele-File Humming code differs from calculated value.	Restore tape to former state.
4012	Failed in verification of block data.	
4013	Attempted to update write-prohibit block.	Software error
4014	Power supply of CCM-33 board did not turn ON or OFF	Hardware error • Self-diagnosis
4015	No corresponding block (From CCM-33)	
4016	Writing ended abnormally (From CCM-33).	• Replace CCM-33 board, DSP-90 board. • Replace harness between CCM-33 board and DSP-90 board.
4017	Failed in communication between IF-780 board and DSP-90 board.	Hardware error • Self-diagnosis • Replace DSP-90 board. • Replace harness between MB-887 board and DSP-90 board.
4018	Failed in communication between label and CCM-33. Or, failed in communication between DSP-90 board and CCM-33 board	Hardware error • Replace cassette.
4019	Checksum error occurred between DSP-90 board and CCM-33 board.	• Replace CCM-33 board/harness. • Replace DSP-90 board.
40F0	Unrecoverable error	Software error Replace IF-780 board.
40YY	Other errors	

*1 Internal Command When Errors Occur (Meaning of 2nd digit (x) in 1x10 to 1xYY)

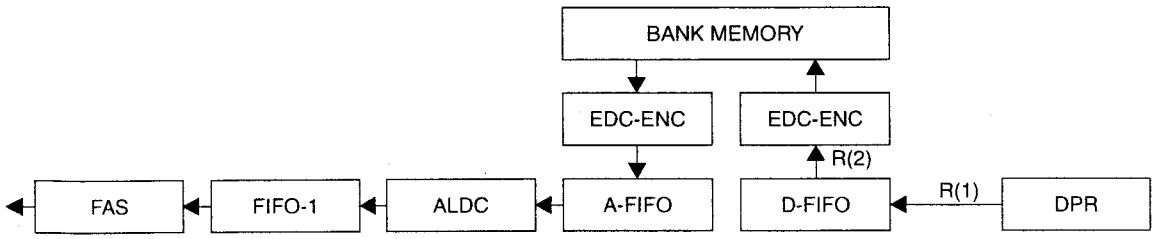
Code (Hex)	Command	Function
1	Continuous READ	Continuously reads required data without stopping tape.
2	Continuous WRITE	Continuously writes required data without stopping tape.
5	PREROLL	Moves tape in front of specified ID.
6	New TAPE	Checks if loaded tape is written.
7	REWIND	Rewinds tape.
8	EJECT	Ejects cassette from unit.
E	FAST FWD	Fast forwards tape.
F	STOP	Sets tape to STANDBY ON/OFF.
D	Other commands	

*2 Location of 1x40 through 1x4A Errors.

• Flow of data during WRITE



• Flow of data during READ



*3 Internal Command When Errors Occur (Meaning of 2nd digit (x) in 2x01 to 2xYY, 3x01 to 3xYY)

Code (Hex)	Command	Function
0	Unspecified	Cannot specify function although one of the following.
1	EJECT	Ejects cassette.
2	UNTHREAD	Draws tape into cassette.
3	STOP	Stops tape.
4	STANDBY-ON	Rotates drum with tape stopped.
5	PLAY	Plays tape.
6	CLEANING	Runs cleaning tape for specified time.
7	STANDBY-OFF	Stops drum rotation with tape stopped.
8	REC	Records on tape.
9	FF	Moves tape in forward direction at maximum speed.
A	REWIND	Moves tape in reverse direction at maximum speed.
B	PREROLL	Moves to specified point based on ID on tape.
C	IDC SEARCH	Moves to specified point based on internal counter.
D	DIAG	During DIAG
F	Others	Function not classified into any of above

Countermeasures for SV Error Code

When errors occur in the servo block, the protection mode is set. The "protection mode" is the mode in which the servo control block stops tape running and the drum motor automatically, and maintains the state. When set to this protection mode, the unit cannot be recovered automatically. If the protection mode is set with the cassette loaded, refer to "1-6. Removing the Cassette When Tape Slack Occurs" and be sure to remove the cassette manually.

Note

The tape may be damaged if the power is turned off and then on with the cassette loaded.

3x03

Description: Reel shift operations uncompleted

Possible cause:
- Failure of S or L position sensor (SV-205 board)
- Reel shift mechanism problems
- Failure of reel shift motor
- Failure of reel shift drive circuit (SV-205 board)
- Failure of reel shift sensor input port (SV-205 board IC902)

3x04

Description: Cassette compartment operations uncompleted

Possible cause:
- Failure of cassette compartment
- Failure of cassette compartment motor drive circuit (SV-205 board)
- Failure of cassette down sensor (CL-29 board)
- Failure of cassette down input port (SV-205 board IC902)

3x05

Description: Threading operation uncompleted

Possible cause:
- Failure of unthread sensor (TR-120 board)
- Failure of thread end sensor (TR-120 board)
- Failure of thread end/unthread end sensor input port (SV-205 board IC902)
- Failure of threading motor
- Failure of threading motor drive circuit
- Threading mechanism problem

3x06

Description: Thread FG undetected

Possible cause:
- Failure of threading motor
- Failure of threading motor FG sensor (PTC-54 board)
- Failure of threading FG amplifier (SV-205 board)
- Failure of threading motor drive circuit

3x07

Description: S or T reel is idling.

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position.
- Failure of S side or T side reel FG sensor (in motor), or improper adjustment of clearance
- Failure of S side or T side reel FG amplifier (SV-205 board)
- Failure of S side or T side reel drive circuit (SV-205 board)
- Improper servo adjustment related to S side or T side reel
- Disconnection of harness

3x08

Description: S reel overcurrent

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position.
- Failure of S reel drive circuit (SV-205 board)
- Failure of S reel motor
- Faulty T reel brake
- Failure of T reel brake solenoid drive circuit (SV-205 board)

3x09

Description: T reel overcurrent

Possible cause:
- Failure of cassette compartment, or improperly installed
  *Reel does not rotate because cassette is raised from standard position
- Failure of T reel drive circuit (SV-205 board)
- Failure of T reel motor
- Faulty T reel brake
- Failure of T reel brake solenoid drive circuit (SV-205 board)

3x0A

Description: Capstan overcurrent

Possible cause:
- Failure capstan drive circuit
- Failure of capstan motor
- Failure of capstan FG amplifier (SV-205 board)
- Failure of IC (IC805 of SV-205 board) for capstan control
- Improper adjustment of clearance at S side or T side reel FG detection area
- Faulty S side or T side reel FG amplifier (SV-205 board)
- Failure of S side or T side reel motor
- Failure of S side or T side reel motor drive circuit (SV-205 board)
- Improper adjustment of servo related to capstan, reel, S tension, and T tension
- Faulty S side or T side reel brake
- Failure of S side or T reel brake solenoid drive circuit (SV-205 board)

3x0C

Description: Detected rotation inconsistency (tape slack direction) between capstan and reel

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position.
- Improper adjustment of clearance at S side or T side reel FG detection area
- Faulty S side or T side reel FG amplifier (SV-205 board)
- Failure of S side or T side reel motor
- Failure of S side or T side reel motor drive circuit (SV-205 board)
- Failure of capstan motor
- Failure of capstan motor drive circuit (SV-205 board)
- Failure of capstan FG amplifier (SV-205 board)
- Improper adjustment of servo related to capstan, reel, S tension, and T tension
- Faulty S side or T side reel brake
- Failure of S side or T reel brake solenoid drive circuit (SV-205 board)
- Disconnection of harness
- Improper adjustment of reel table height
- Problems of tape path, drum, etc.
- Tape defects (winding state, tape sticks)

3x0D

Description: Detected rotation inconsistency (tape-cut-out direction) between capstan and reel

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position
- Improper adjustment of clearance at S side or T side reel FG detection area
- Faulty S side or T side reel FG amplifier (SV-205 board)
- Failure of S side or T side reel motor
- Failure of S side or T side reel motor drive circuit (SV-205 board)
- Failure of capstan motor
- Failure of capstan motor drive circuit (SV-205 board)
- Failure of capstan FG amplifier (SV-205 board)
- Improper adjustment of servo related to capstan, reel, S tension, and T tension
- Faulty S side or T side reel brake
- Failure of S side or T reel brake solenoid drive circuit (SV-205 board)
- Disconnection of harness
- Improper adjustment of reel table height
- Problems of tape path, drum, etc.
- Tape defects (winding state, tape sticks)

3x0E

Description: Excessive S tension

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position
- Failure of S tension sensor or related circuit (SV-205 board)
- Failure of S reel motor
- Improper adjustment of servo related to S reel, S tension sensor
- Failure of S reel brake
- Failure of S reel brake solenoid drive circuit (SV-205 board)
- Disconnection of harness

3x12

Description: Drum could not lock.

Possible cause:
- Failure of drum motor
- Failure of drum control IC (IC805 of SV-205 board)
- Failure of drum motor drive circuit (SV-205 board)
- Failure of drum PG/FG waveform shaping circuit (SV-205 board)

3x14

Description: Abnormal capstan speed

Possible cause:
- Failure of capstan motor
- Failure of capstan control IC (IC805 of SV-205 board)
- Failure of capstan motor drive circuit (SV-205 board)
- Failure of FG sensor in capstan motor
- Failure of capstan FG amplifier (SV-205 board)
- Improper adjustment of capstan servo

3x15

Description: Abnormal T reel speed

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position
- Failure of T reel motor
- Failure of T reel motor drive circuit
- Failure of FG sensor in T reel motor
- Failure of T reel motor FG amplifier (SV-205 board)
- Improper adjustment of T reel servo

3x16

Description: Detected rotation inconsistency (tape slack direction) of reel during threading and unthreading

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position
- Improper adjustment of clearance at T side reel FG detection area
- Faulty T side reel FG amplifier (SV-205 board)
- Failure of T reel motor amplifier
- Failure T side reel motor drive circuit (SV-205 board)
- Improper adjustment of servo related to T reel
- Faulty T side reel brake
- Failure of T reel brake solenoid drive circuit (SV-205 board)
- Disconnection of harness
- Improper adjustment of reel table height

3x17

Description: Detected rotation inconsistency (tape-cut-out direction) of reel during threading and unthreading

Possible cause:
- Failure of cassette compartment, or improperly installed
  * Reel does not rotate because cassette is raised from standard position.
- Improper adjustment of clearance at T side reel FG detection area
- Faulty T side reel FG amplifier (SV-205 board)
- Faulty of T reel motor amplifier
- Faulty T side reel motor drive circuit (SV-205 board)
- Improper adjustment of servo related to T reel
- Faulty T side reel brake
- Failure of T reel brake solenoid drive circuit (SV-205 board)
- Disconnection of harness
- Improper adjustment of reel table height

3x1B

Description: Sent undefined command

Possible cause:
- Faulty operations of DPRAM (FM-75 board)
- Disconnection of harness
- Failure of circuit around CPU bus (IC814 of SV-205 board)
- Faulty connection of FM board (FM-75 board)

3x1D

Description: Illegal positional relationship among cassette compartment, thread, and reel shift

Possible cause:
- Failure of unthread sensor
- Failure of thread end sensor
- Failure of threading end/unthreading end sensor input port (IC902 of SV205 board)
- Failure of threading motor
- Failure of threading motor drive circuit
- Threading mechanism problems
- Failure of S or L position sensor (SV-205 board)
- Reel shift mechanism problems
- Failure of reel shift motor
- Failure of reel shift drive circuit (SV-205 board)
- Failure of reel shift sensor input port (IC902 of SV-205 board)

3x26

Description: Emergency eject was pressed

Possible cause:
- Emergency eject was pressed.

3x28

Description: Drum overcurrent

Possible cause:
- Failure of drum drive circuit (SV-205 board)
- Failure of drum motor
- Failure of S tension sensor or related circuit (SV-205 board)

3x2A

Description: Checksum error of SV adjustment value data

Possible cause:
- Failure of flash memory (IC816 of SV-205 board) for saving servo adjustment value
- Failure of peripheral circuits of bus
- Improper automatic adjustments

3x34

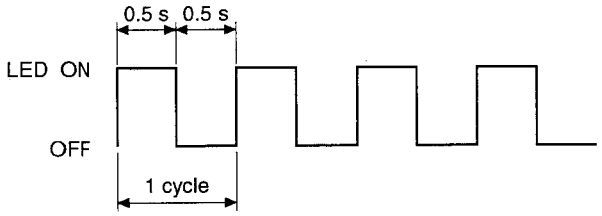
Description: The reference signal from the FM-75 board is not detected during operating.

Possible cause:
- Failure of FM-75 board
- Disconnection of harness (MB/SV, flat cable)

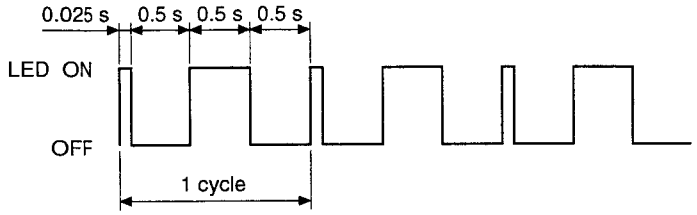
Reading the SV CPU LEDs

When the SV CPU fall in the fatal state, and is unable to return statuses to upper SYS, etc., errors can be determined by looking at the LEDs indicating the CPU state from the gap between the S tension sensor and mechanical deck.
This is not possible with the cassette compartment mounted. To look at the LEDs, remove the cassette compartment.
The LEDs blinking patterns of the SV1 (IC814) indicate the same as those of the SV2 (IC904).
Refer to Fig.1 for the positions of the LEDs.

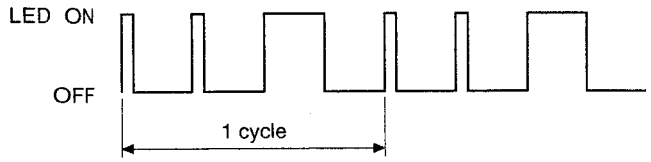
Blinking pattern 0
Details: Unused interrupt



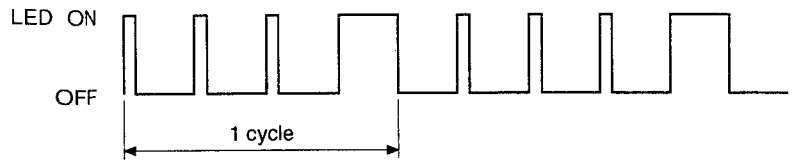
Blinking pattern 1
Details: Illegal CPU command



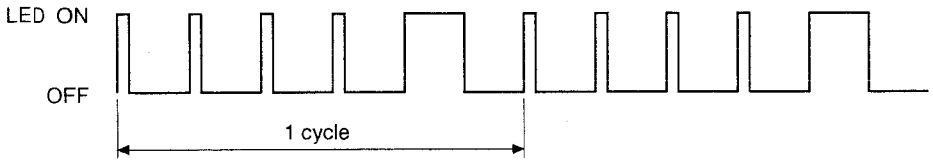
Blinking pattern 2
Details: CPU address error



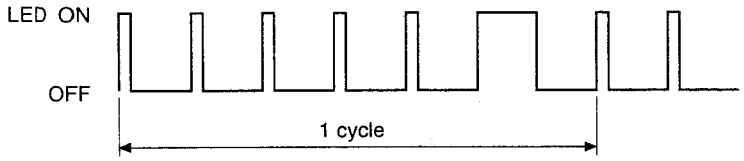
Blinking pattern 3
Details: DMA address error



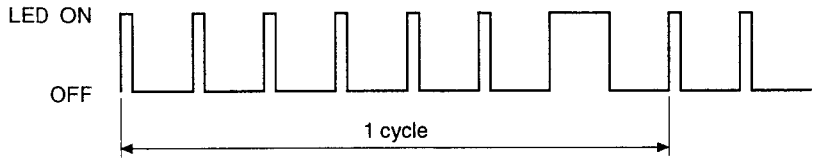
Blinking pattern 4
Details: Illegal slot



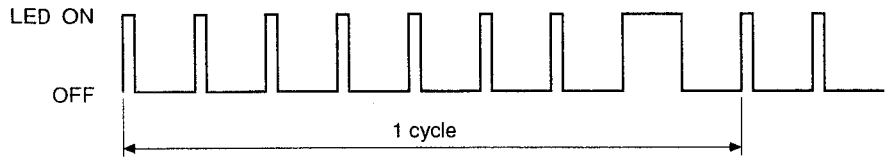
Blinking pattern 5
Details: Abnormal reference



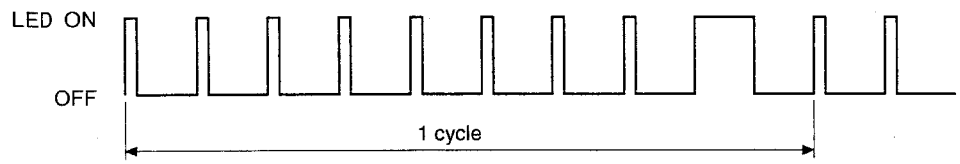
Blinking pattern 6
Details: Firmware checksum error



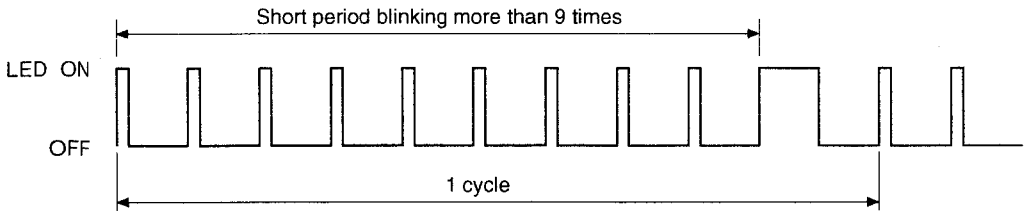
Blinking pattern 7
Details: Data bus check error



Blinking pattern 8
Details: DPRAM verify error



Blinking pattern 9
Details: Address bus check error
Short period blinking, more than 9 times



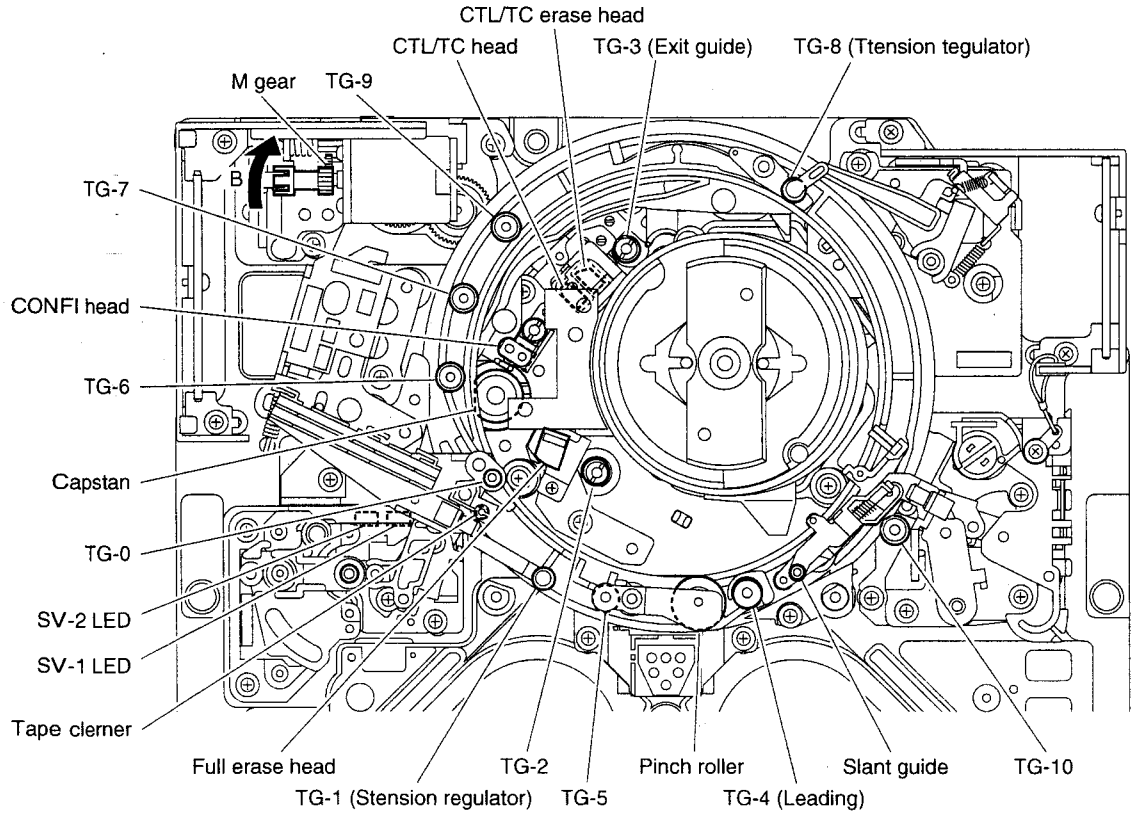


Fig. 1

5-13-6. List of Self-Diagnosis Results Codes and Countermeasures

When error code 1D1C3XAA (X ≠ D) that is not listed below occurs, refer to page 146 "Countermeasures for SV Error Code".

Error Code	Details	Remedy
00044080	Bank memory check error	Replace FM-75 board.
00044081	FM-CPU RAM check error	
00044085	FM-CPU ROM check error	
00044086	Check error	
00044087	FM-CPU DMA check error	
1D1C10C0	EE-2 error	Replace DPR-160 board.
1D1C10C1	EE-3 error	Replace DPR-160 board, FM-75 board.
1D1C10C2	EE-2 error (With CRC)	Replace DPR-160 board.
1D1C10C3	EE-3 error (With CRC)	Replace DPR-160 board, FM-75 board.
1D1C207B	DIAG executed in Tape-IN state.	Eject cassette and execute again.
1D1C3D21	S reel FG duty check results were unsatisfactory.	Check or replace S reel motor, SV-205 board, S reel brake.
1D1C3D22	S reel PG for S reel FG teeth number diagnosis not output.	Check or replace S reel motor, SV-205 board.
1D1C3D23	S reel FG teeth number was abnormal.	
1D1C3D28	Unexpected state occurred such as cassette was loaded during S reel diagnosis.	Execute again.
1D1C3D31	T reel FG duty check results were unsatisfactory.	Check or replace T reel motor, SV-205 board, T reel brake.
1D1C3D32	T reel PG for T reel FG teeth number diagnosis not output.	Check or replace T reel motor, SV-205 board.
1D1C3D33	T reel FG teeth number was abnormal.	
1D1C3D38	Unexpected state occurred such as cassette was loaded during T reel diagnosis.	Execute again.
1D1C3D41	Capstan FG check results were unsatisfactory.	Check or replace capstan motor, SV-205 board.
1D1C3D48	Unexpected state occurred such as cassette was loaded during capstan FG check.	Execute again.
1D1C3D51	S tension check results were unsatisfactory.	Check or replace SV-205 board. (Note: S tension sensor is not related.)
1D1C3D58	Unexpected state occurred such as cassette was loaded during S tension check.	Execute again.
1D1C3D61	T tension check results were unsatisfactory.	Check T tension sensor, SV-205 board.
1D1C3D68	Unexpected state occurred such as cassette was loaded during T tension check.	Execute again.
1D1C3D71	Failed in PG automatic adjustment.	Check cassette type. Re-execute no-cassette servo adjustment Check or replace DPR-160 board and SV-250 board. Or replace drum.
1D1C3D72	Could not detect signal required for PG automatic adjustment.	Check cassette type.
1D1C3D73	PG automatic adjustment ended in timeout.	Check or replace DPR-160 board and SV-250 board. Or replace drum.
1D1C3D78	PG automatic adjustment was not possible.	Execute again.
1D1C3D81	S reel motor terminal voltage check results were unsatisfactory.	Check or replace S reel motor, SV-205 board.
1D1C3D88	Unexpected state occurred such as cassette was loaded during S reel motor terminal voltage check.	Execute again.

Continued to next page

Error Code	Details	Remedy
1D1C3D91	T reel motor terminal voltage check results were unsatisfactory.	Check or replace T reel motor, SV-205 board.
1D1C3D98	Unexpected state occurred such as cassette was loaded during T reel motor terminal voltage check.	Execute again.
1D1C3DA1	Drum jitter check results were unsatisfactory.	Check or replace drum, SV-205 board.
1D1C3DA8	Unexpected state occurred such as cassette was loaded during drum jitter check.	Execute again.
1D1C3DB1	SAT operation check error	Check cassette type.
1D1C3DB2	SAT operation check ended in timeout.	Check or replace DPR-160 board and SV-250 board.
1D1C3DB3	Abnormal relation between SAT signal and tracking control	Or replace drum
1D1C3DB4	SAT signal exceeded measurement range.	
1D1C3DB8	Unexpected state occurred during SAT operation check.	
1D1C3DC1	ATF operation check error	
1D1C3DC2	ATF operation check ended in timeout.	
1D1C3DC3	Abnormal correlation of ATF signal	
1D1C3DC4	Tracking control value too large in servo lock state	
1D1C3DC8	Unexpected state occurred during ATF operation check.	Execute again.
40000001	SIO1 communication error (PSC/Ext-dsp port)	Replace IF-780 board.
40000002	SIO2 communication error (SV-205 port)	
40000003	SIO4 communication error (Remote port)	
40000004	SRAM check error	Replace IF-780 board.
40000005	NVRAM check error	
40000006	DPRAM (FMT) check error	
40000007	DPRAM (SYS) check error	
40000008	DPRAM (SV) check error	
40000009	SDRAM check error	
4000000A	Display communication error	Replace IF-780 board, harness, DSP-90 board.
50XXYYZZ	DSP block error	Refer to "DSP error code countermeasure".

DSP error code countermeasure

XX, YY and ZZ are expressed in hexadecimal. Meaning of each bit is shown on the table below. 1 of each bit means that the self-diagnosis results unsatisfactory.

Countermeasure

Details	Remedy
Tele-File is unsatisfactory.	Replace CCM-33 board, DSP-90 board, harness.
ADAPTER IN is unsatisfactory.	Replace SE-533 board, DSP-90 board, harness.
Others are unsatisfactory.	Replace DSP-90 board.

Description on bit

XX
bit0 STOP-key
bit 1 UNLOAD-key
bit 2 REW-key
bit 3 FF-key
bit 4 FWD-key
bit 5 REC-key
bit 6 SEARCH-key
bit 7 UNLOCK-key

YY
bit 0 MARK-key
bit 1 STANDBY-key
bit 2 ESC-key
bit 3 SELECT-key
bit 4 CONTRAST+-key
bit 5 CONTRAST—key
bit 6 UP-key
bit 7 DOWN-key

ZZ
bit 0 RIGHT-key
bit 1 LEFT-key
bit 2 ENTER-key
bit 3 Emg. EJECT-key
bit 4 SHUT DOWN-key
bit 5 POWER-key
bit 6 Tele-File
bit 7 ADAPTER IN

5-14. Electrical Alignment Overview

5-14-1. Equipments and Tools Used

Use of the following equipments listed below or their equivalent is recommended.

Equipment/Tool	Model Name/Description	Remarks
Oscilloscope	Tektronix 2465B or equivalent	
PC *1		IBM PC/AT compatible computer
Terminal emulator software	Tera Term pro, etc.	Freeware
Alignment tape	YR2-1A	Sony part No.: 8-960-074-32
	YR5-1A	Sony part No.: 8-960-074-31
Blank tape	Cassette tape for DTF-2	Completely erased and recordable tape
Connection cable	(RS-232C cross cable*2)	For connecting PC and GY-8240

*1: Set the RS-232C port of the PC as follows.

- For change of setting, refer to the instruction manual of the PC or software installed in the PC (terminal emulator).

  Communication baud rate: 38400 bps
  Character length: 8 bits
  Stop bit: 1 bit
  Parity: None

*2: Prepare this cable according to the RS-232C connector of the PC to be connected, referring to section 1-5.

Note: Use calibrated measuring devices.

5-14-2. Initializing the NV-RAM

Perform the following operations if data saved in the NV-RAM (nonvolatile memory) is lost (due to replacement of IC, board, etc.)
If performing from a PC/workstation, connect the PC/workstation to the OPTION-1 port of the GY-8240. (Refer to section 5-1-1.)

1. Initializing the servo adjustment data

Execute the ADJ mode. (Refer to section 5-9.)

2. Initializing custom information, service information, and setup information

a. When the maintenance menu starts, enter the command "DEF↵".
b. The GY/DIR selection menu will be displayed. After the prompt "DEF=>", enter "1↵".
c. After the prompt "Are you sure? (Y:yes/N:no)=>", enter "y↵" to execute.
d. After "DEF=>", enter "QUIT↵".

Note

The custom information, service information, and setup information cannot be initialized from the front panel.

5-14-3. Electrical Adjustments After Board Replacements

Perform the following electrical adjustments after replacing boards (execute in the given order). Boards not listed do not require electrical adjustments after replacement.

Note

Execute the electrical adjustments in the given order.

SV-205 board (Refer to 5-14-2. Be sure to initialize the data in the NV-RAM.)

	Section No.	Adjustment	Adjusting Point
	5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
	5-9-6.	Auto PG adjustment	3: DRUM PG automatic adjustment
	5-4-13.	ATF check	SV18: ATF circuit operation check
	5-4-13.	SAT check	SV19: SAT circuit operation check

FM-75 board

	Section No.	Adjustment	Adjusting Point
	1-12.	Operation check by scsi tool.exe	

DPR-160 board

	Section No.	Adjustment	Adjusting Point
	5-9-7.	1. Playback all automatic adjustment (DTF-2)	51. RF PB all adjust (DTF-2)
	5-9-8.	2. Playback all automatic adjustment (DTF-1)	52. RF PB all adjust (DTF-1)
	5-9-9.	3. Alignment tape playback error rate check (DTF-2)	53. RF error rate (DTF-2 PB Align)
	5-9-10.	4. Recording error rate check (DTF-2)	54. RF error rate (DTF-2 REC Confi)
	5-9-11.	5. Self-recording tape playback error rate check (DTF-2)	55. RF error rate (DTF-2 REC/PB)
	5-9-12.	6. Alignment tape playback error rate check (DTF-1)	56. RF error rate (DTF-1 PB Align)
	5-9-13.	7. Auto tracking circuit adjustment	57. RF ATF amp gain adjust
	5-9-14.	8. Saving RF adjustment data	58. RF data save

DSP-90 board

	Section No.	Adjustment	Adjusting Point
	5-4-3.	DIAG ALL Check	DIAG menu
	1-12.	Operation check by scsi tool.exe	——

IF-780 board

	Section No.	Adjustment	Adjusting Point
	5-4-3.	DIAG ALL Check	DIAG menu
	5-3.	Custom information setting check	CUSTOM menu
	5-8.	Service information setting check	SERV menu
	5-10.	Setup information setting check	SETUP menu
	1-12.	Operation check by scsi tool.exe	——

5-14-4. Electrical Adjustments After Switching Regulator Replacement

Perform the following electrical adjustments after replacing the switching regulator.

Note

Execute the electrical adjustments in the given order.

Section No.	Adjustment	Adjusting Point
5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
5-9-7.	1. Playback all automatic adjustment (DTF-2)	51. RF PB all adjust (DTF-2)
5-9-8.	2. Playback all automatic adjustment (DTF-1)	52. RF PB all adjust (DTF-1)
5-9-9.	3. Alignment tape playback error rate check (DTF-2)	53. RF error rate (DTF-2 PB Align)
5-9-10.	4. Recording error rate check (DTF-2)	54. RF error rate (DTF-2 REC Confi)
5-9-11.	5. Self-recording tape playback error rate check (DTF-2)	55. RF error rate (DTF-2 REC/PB)
5-9-12.	6. Alignment tape playback error rate check (DTF-1)	56. RF error rate (DTF-1 PB Align)
5-9-13.	7. Auto tracking circuit adjustment	57. RF ATF amp gain adjust
5-9-14.	8. Saving RF adjustment data	58. RF data save
5-4-3.	DIAG All Cneck	DIAG menu
1-12.	Operation check by scsi tool.exe	——

5-14-5. Electrical Adjustments After Mechanical Parts Replacements

Perform the following electrical adjustments after replacing mechanical parts. Mechanical parts not listed do not require electrical adjustments after replacement.

Note

Execute the electrical adjustments in the given order.

Drum assembly or upper drum assembly

Section No.	Adjustment	Adjusting Point
5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
5-9-6.	Auto PG adjustment	3: DRUM PG automatic adjustment
5-9-7.	1. Playback all automatic adjustment (DTF-2)	51. RF PB all adjust (DTF-2)
5-9-8.	2. Playback all automatic adjustment (DTF-1)	52. RF PB all adjust (DTF-1)
5-9-9.	3. Alignment tape playback error rate check (DTF-2)	53. RF error rate (DTF-2 PB Align)
5-9-10.	4. Recording error rate check (DTF-2)	54. RF error rate (DTF-2 REC Confi)
5-9-11.	5. Self-recording tape playback error rate check (DTF-2)	55. RF error rate (DTF-2 REC/PB)
5-9-12.	6. Alignment tape playback error rate check (DTF-1)	56. RF error rate (DTF-1 PB Align)
5-9-13.	7. Auto tracking circuit adjustment	57. RF ATF amp gain adjust
5-9-14.	8. Saving RF adjustment data	58. RF data save
5-4-13.	ATF check	SV18: ATF circuit operation check
5-4-13.	SAT check	SV19: SAT circuit operation check
1-12.	Operation check by scsi tool.exe	Overall check

Capstan motor

Section No.	Adjustment	Adjusting Point
5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
1-12.	Operation check by scsi tool.exe	Overall check

S side reel motor plate assembly

Section No.	Adjustment	Adjusting Point
5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
1-12.	Operation check by scsi tool.exe	Overall check

T side reel motor plate assembly

Section No.	Adjustment	Adjusting Point
5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
1-12.	Operation check by scsi tool.exe	Overall check

S tension regulator assembly

Section No.	Adjustment	Adjusting Point
5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
1-12.	Operation check by scsi tool.exe	Overall check

T tension regulator assembly

Section No.	Adjustment	Adjusting Point
5-9-5.	No-tape servo adjustment	2: S/T reel, capstan, T tension sensor, S tension sensor, S/T reel terminal voltage check, drum jitter check
1-12.	Operation check by scsi tool.exe	Overall check

5-15. Servo System Adjustments

5-15-1. Adjustments After SV-205 Board Replacement

Perform the following adjustments if the SV-205 board has been replaced.
They will automatically be performed with the input of commands.
For details on commands, refer to 5-9-5 and 5-9-6.

Adjustment	Details
① No-tape servo adjustment (5-9-5. All Motors, Tension Sensor Adj)	S reel FG adjustment → T reel FG adjustment → Capstan FG adjustment → S tension sensor adjustment → T tension sensor adjustment → S reel terminal voltage check → T reel terminal voltage check → Drum jitter check
② PG automatic adjustment (5-9-6. Auto PG Adjust)	DRM PG automatic adjustment

5-16. RF Adjustments

Perform the following adjustments when repairing or replacing parts of the RF electrical circuit.
For details on adjustments, refer to 5-9-7 to 5-9-14.

Equipment and tool used

- Alignment tape (DTF-2) YR2-1A (Sony Part No.: 8-960-074-32)
- Alignment tape (DTF-1 YR5-1A (Sony Part No.: 8-960-074-31)
- Blank tape (Cassette for DTF-2)
  * Blank tape is a tape which is completely erased and recordable.
- PC (IBM PC/AT compatible computer)
- Terminal emulator software (DEC VT100 compatibility)
- RS-232C cross cable

Command	Title	Description
51	RF PB all adjustment (DTF-2)	Playback all automatic adjustment (DTF-2)
52	RF PB all adjustment (DTF-1)	Playback all automatic adjustment (DTF-1)
53	RF error rate (DTF-2 PB Align)	Playback error rate check (DTF-2)
54	RF error rate (DTF-2 REC confi)	Recording error rate check (DTF-2)
55	RF error rate (DTF-2 REC/PB)	Self-recording playback error rate check (DTF-2
56	RF error rate (DTF-1 PB Align)	Playback error rate check (DTF-1)
58	RF data save	Saving of RF adjustment data

Section 6
Service Setting Mode (LCD)

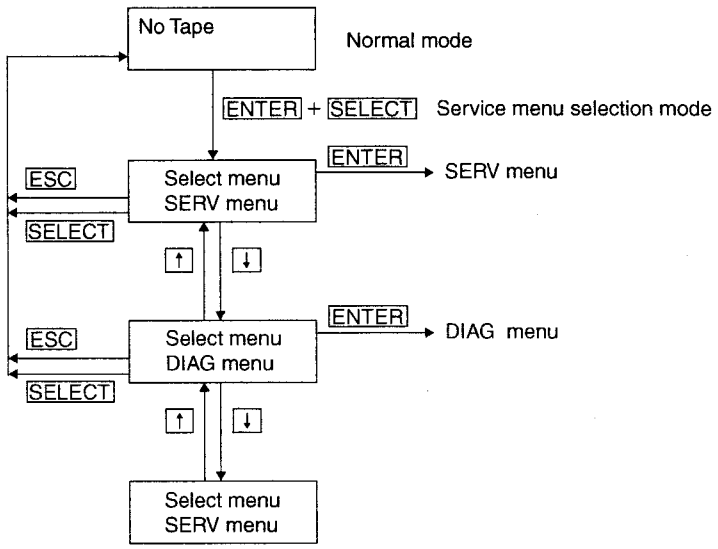
The same settings as the SERVICE mode of the maintenance mode can be performed from the display panel. (Only for some settings.)
The following describes the method of setting (SERV menu) from the display panel.
Refer to Operation Manual on other uses of the display panel.

Legend
[→]: Indicates to press the button shown in the [ ].
<NORMAL>: The value in < > is the value set at shipment.

6-1. Service Menu Selection Mode

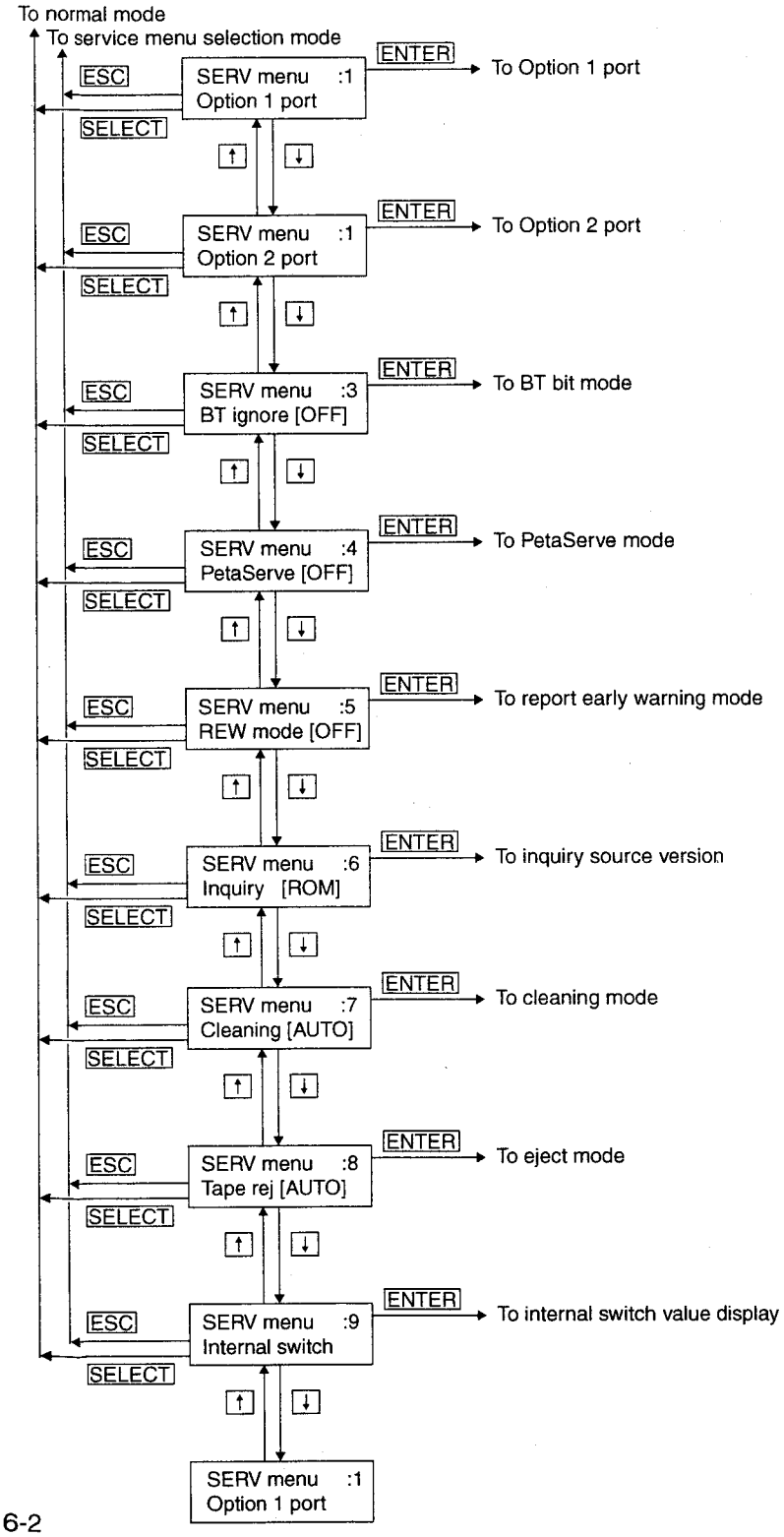
Set the service menu using the [SELECT], [←], [↑], [→], [↓], [ESC], [ENTER] buttons on the internal panel. Menu items and setting values are displayed on the screen.

[ENTER] + [SELECT]: Sets the menu selection mode.
[SELECT]: Ends the menu selection mode if during the menu selection mode.
[↑], [↓]: Selects the menu item.
[←], [→]: Selects the menu setting value.
[ENTER] : Sets the selection.
[ESC]: Returns to the upper menu item. Ends the menu selection mode when the top menu is set.



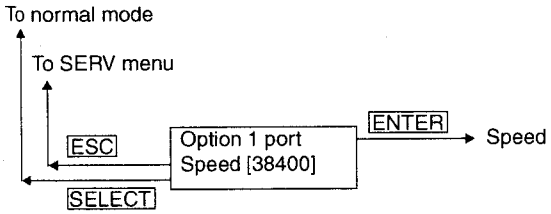
6-2. SERV Menu

(1) Select the desired item using the [↓] and [↑] keys.
(2) Press the [ENTER] key to proceed to selecting the setting value.
(3) Press the [ESC] key to return to the service menu slection mode.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode. The previous setting value remains.



a. Option 1 port

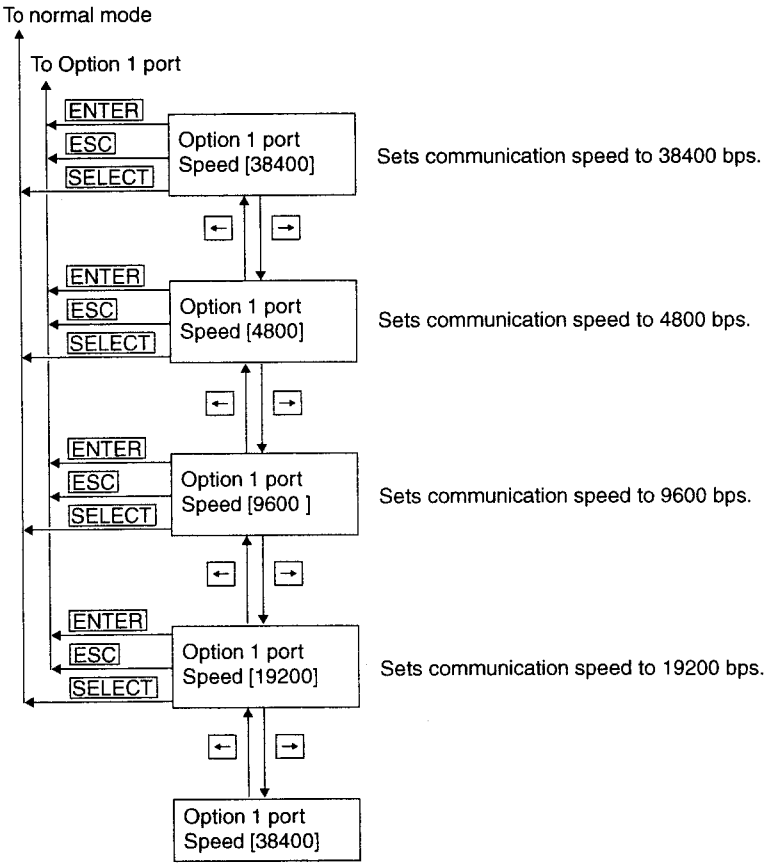
(1) Press the ENTER key to proceed to selecting the setting value.
(2) Press the ESC key to return to the SERV menu.
(3) Press the SELECT key to cancel the selection and return to the normal mode. The previous setting value remains.



Speed

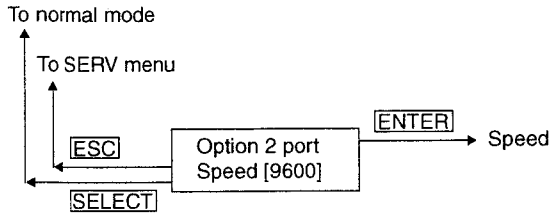
(1) Select the desired item using the ← and → keys.
(2) Press the ENTER key to set the selection and return to the selection of the Option 1 port menu item.
(3) Press the ESC key to cancel the selection. The previous setting value remains.
(4) Press the SELECT key to cancel the selection and return to the normal mode. The previous setting value remains.

The default value is 38400.



b. Option 2 port

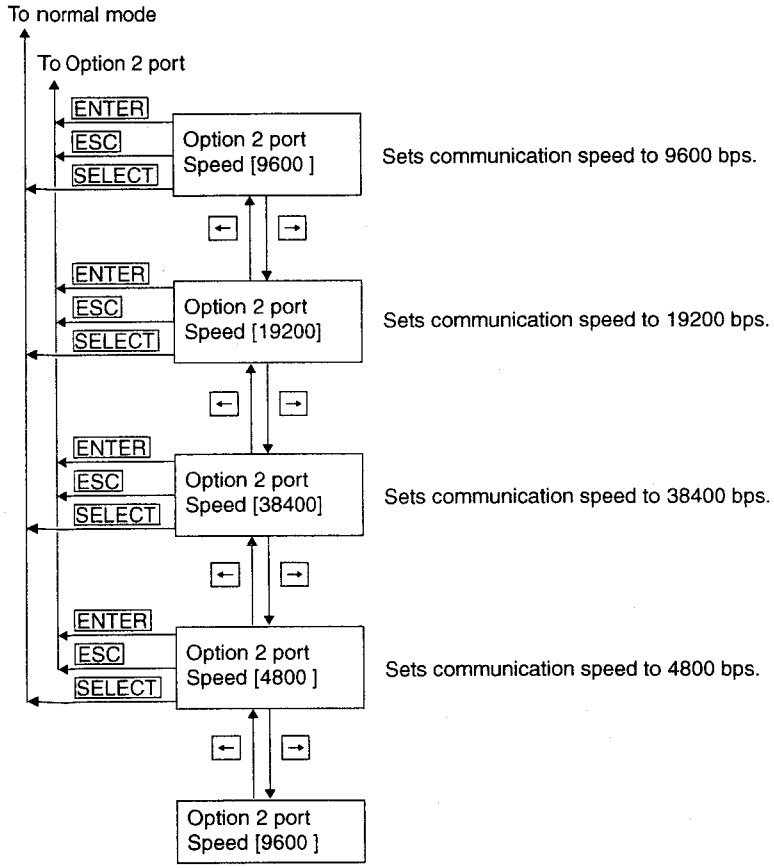
(1) Press the ENTER key to proceed selecting the setting value.
(2) Press the ESC key to return to the SERV menu.
(3) Press the SELECT key to cancel the selection and return to the normal mode. The previous setting value remains.



Speed

(1) Select the desired number using the ← and → keys.
(2) Press the ENTER key to set the selection and return to the selection of the Option 2 port menu item.
(3) Press the ESC key to cancel the selection. The previous setting value remains.
(4) Press the SELECT key to cancel the selection and return to the normal mode.
The previous setting value remains.

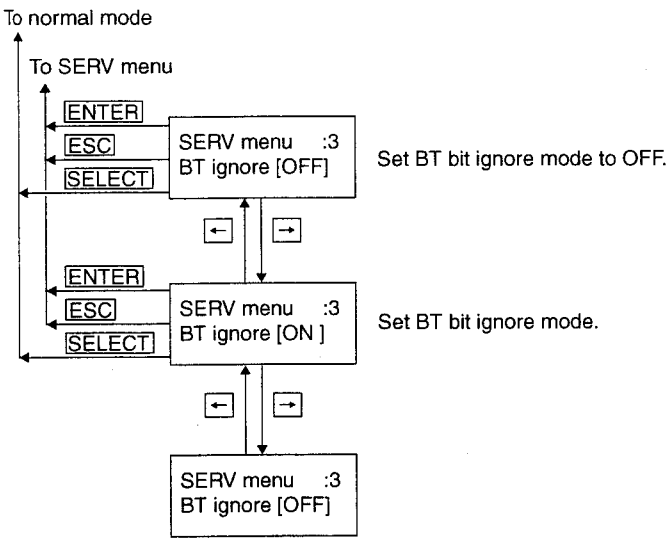
The default value is 9600.



c. BT bit mode

(1) Select the value to be set using the [←] and [→] keys.
(2) Press the [ENTER] key to set the selection and return to the selection of the SERV menu item.
(3) Press the [ESC] key to cancel the selection. The previous setting value remains.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode. The previous setting value remains.

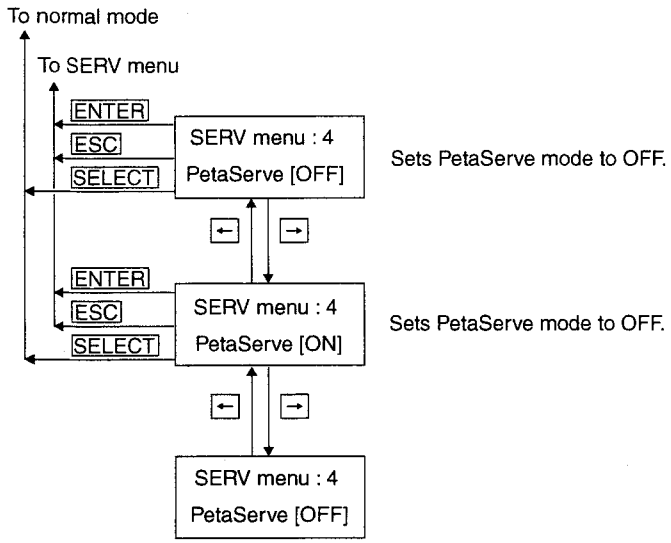
The default value is [OFF].



d. PetaServe mode

(1) Select the value to be set using the ← and → keys.
(2) Press the ENTER key to set the selection and return to the selection of the SERV menu item.
(3) Press the ESC key to cancel the selection. The previous setting value remains.
(4) Press the SELECT key to cancel the selection and return to the normal mode. The previous setting value remains.

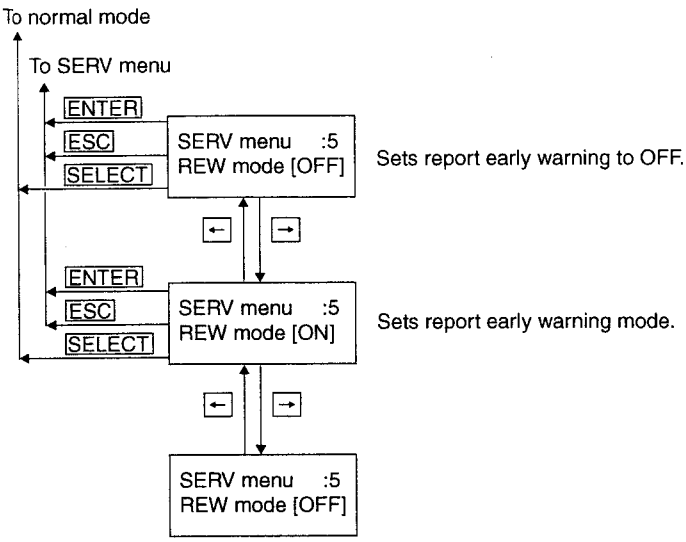
The default value is [OFF].



e. Report early warning mode

(1) Select the value to be set using the [←] and [→] keys.
(2) Press the [ENTER] key to set the selection and return to the selection of the SERV menu item.
(3) Press the [ESC] key to cancel the selection. The previous setting value remains.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode. The previous setting value remains.

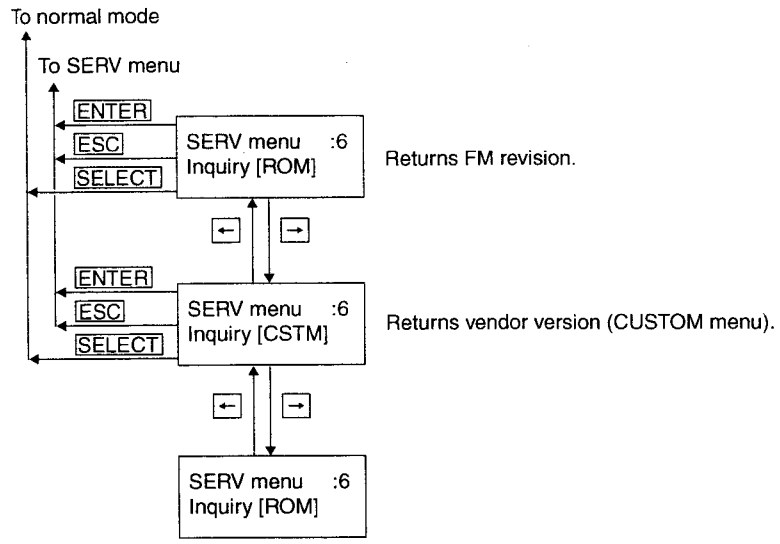
The default value is [OFF].



f. Inquiry source version

(1) Select the value to be set using the [←] and [→] keys.
(2) Press the [ENTER] key to set the selection and return to the selection of the SERV menu item.
(3) Press the [ESC] key to cancel the selection. The previous setting value remains.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode. The previous setting value remains.

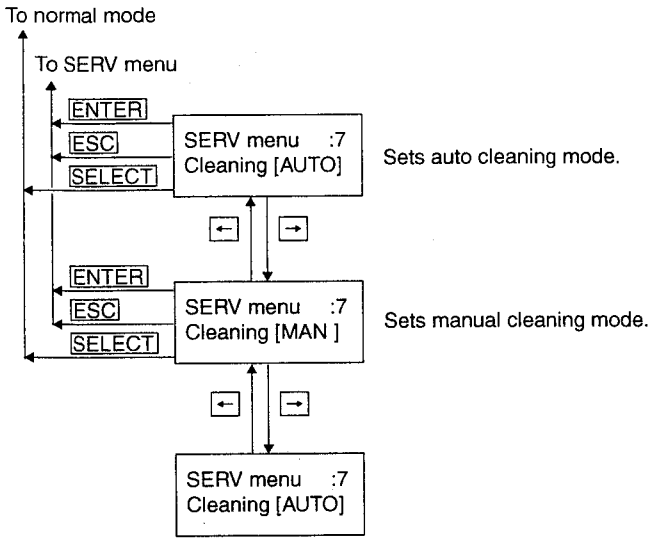
The default value is [ROM].



g. Cleaning mode

(1) Select the value to be set using the [←] and [→] keys.
(2) Press the [ENTER] key to set the selection and return to the selection of the SERV menu item.
(3) Press the [ESC] key to cancel the selection. The previous setting value remains.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode. The previous setting value remains.

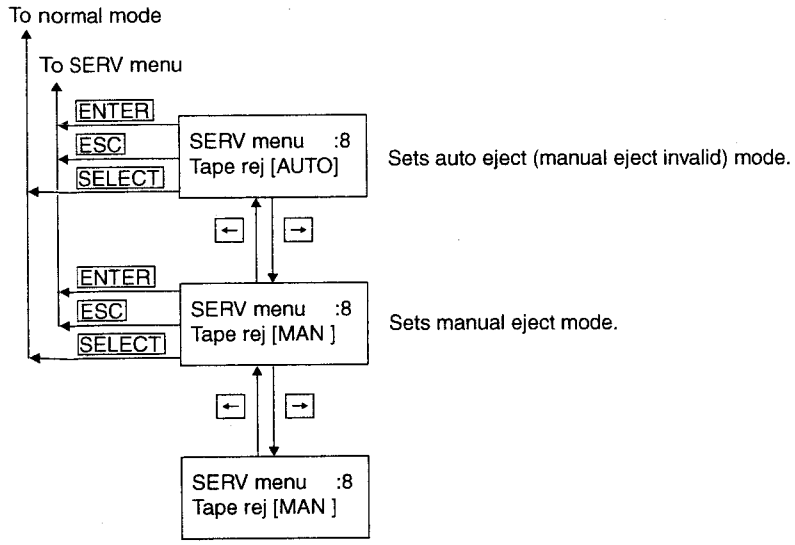
The default value is [AUTO].



h. Eject mode

(1) Select the value to be set using the [←] and [→] keys.
(2) Press the [ENTER] key to set the selection and return to the selection of the SERV menu item.
(3) Press the [ESC] key to cancel the selection. The previous setting value remains.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode. The previous setting value remains.

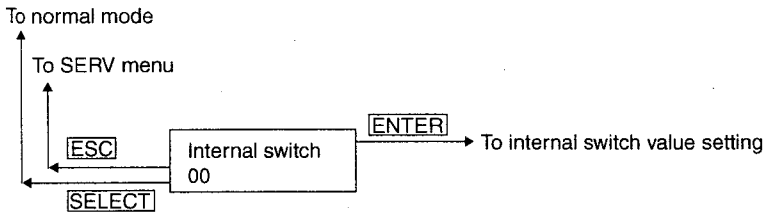
The default value is [AUTO].



i. Internal switch value display

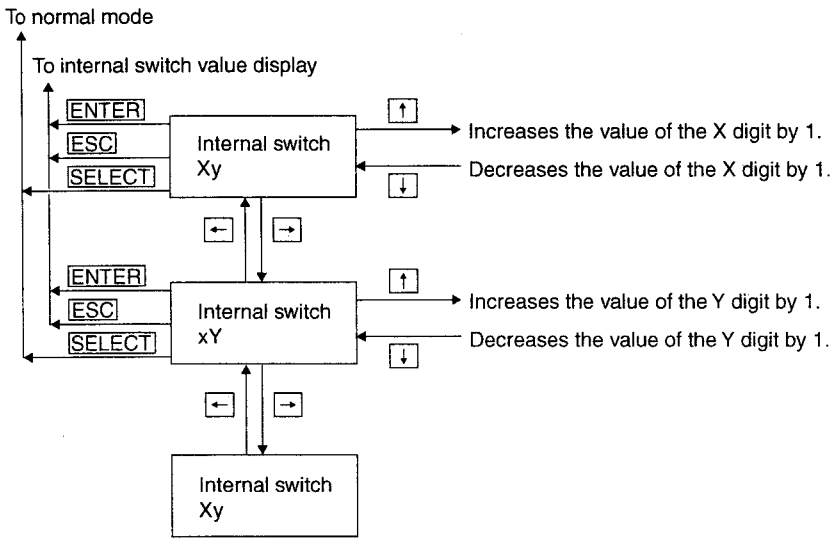
(1) Press the ENTER key to proceed to the selection of setting values.
(2) Press the ESC key to return to the SERV menu mode.
(3) Press the SELECT key to cancel the selection and return to the normal mode. The previous setting value remains.

The default value is [00].



Internal switch value setting

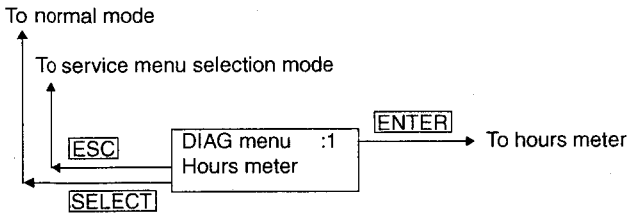
(1) Select the digit to be set using the ← and → keys.
(2) Select the number to be set using the ↓ and ↑ keys.
(3) Press the ENTER key to set the selection and return to the internal switch value display.
(4) Press the ESC key to cancel the selection. The previous setting value remains.
(5) Press the SELECT key to cancel the selection and return to the normal mode. The previous setting value remains.



Both digits can be set to 0..9,.A..F.
When ↑ is pressed exceeding F, the value is set back to 0.
When ↓ is pressed exceeding 0, the value is set back to F.
Pressing ↑ and ↓ continuously changes the value continuously.

6-3. DIAG Menu

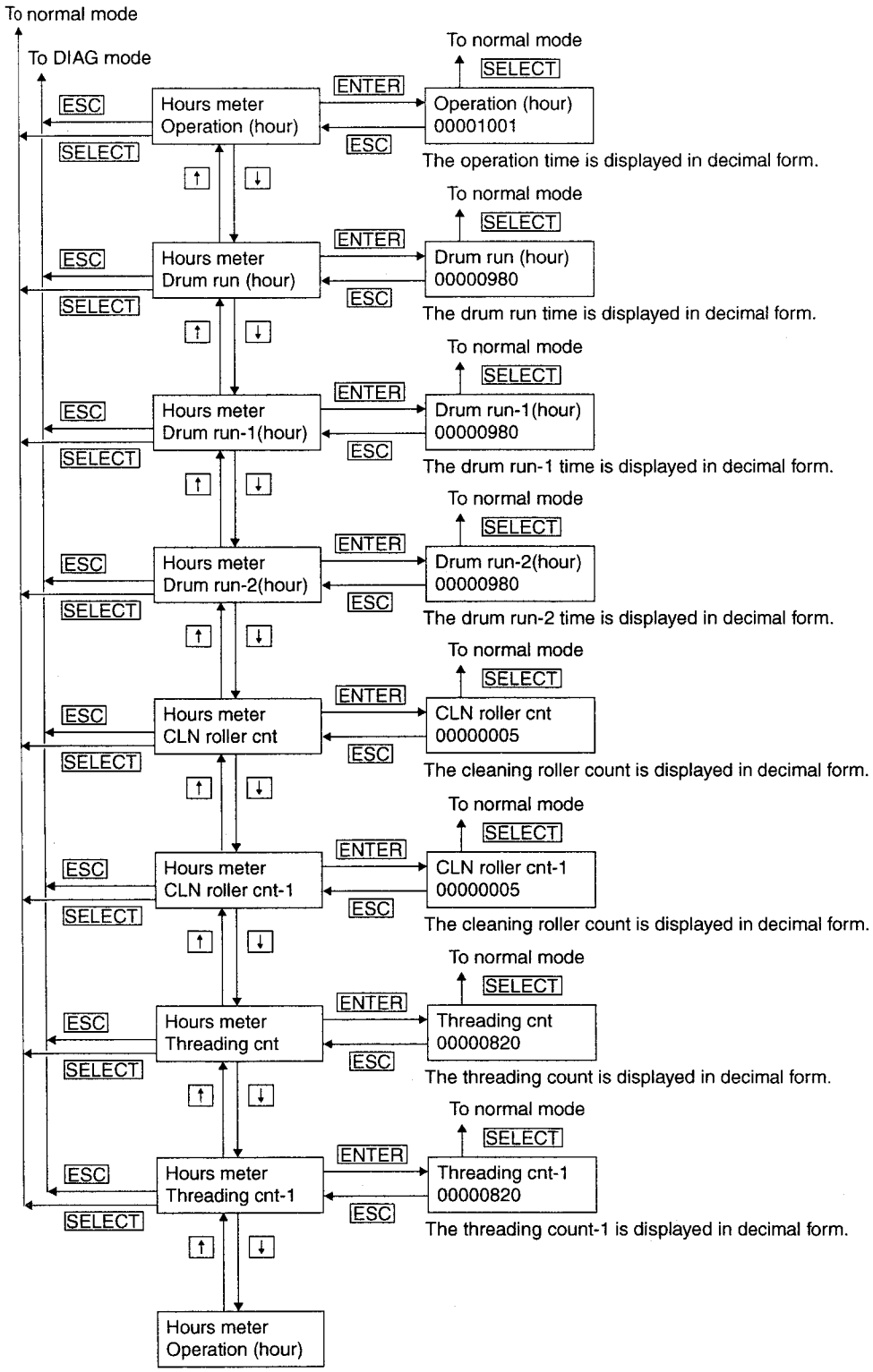
(1) Select the desired item using the [↓] and [↑] keys.
(2) Press the [ENTER] key to proceed to the selection of setting values.
(3) Press the [ESC] key to return to the service menu selection mode.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode. The previous setting value remains.



Hours meter

(1) Select the desired item using the [↓] and [↑] keys.
(2) Press the [ENTER] key to proceed to the numerical display.
(3) Press the [ESC] key to return to the DIAG mode.
(4) Press the [SELECT] key to cancel the selection and return to the normal mode.

(Refer to next page)


To normal mode
To DIAG mode
ESC
SELECT
Hours meter
Operation (hour)
ENTER
ESC
To normal mode
SELECT
Operation (hour)
00001001
The operation time is displayed in decimal form.
Hours meter
Drum run (hour)
Drum run (hour)
00000980
The drum run time is displayed in decimal form.
Hours meter
Drum run-1(hour)
Drum run-1(hour)
00000980
The drum run-1 time is displayed in decimal form.
Hours meter
Drum run-2(hour)
Drum run-2(hour)
00000980
The drum run-2 time is displayed in decimal form.
Hours meter
CLN roller cnt
CLN roller cnt
00000005
The cleaning roller count is displayed in decimal form.
Hours meter
CLN roller cnt-1
CLN roller cnt-1
00000005
The cleaning roller count is displayed in decimal form.
Hours meter
Threading cnt
Threading cnt
00000820
The threading count is displayed in decimal form.
Hours meter
Threading cnt-1
Threading cnt-1
00000820
The threading count-1 is displayed in decimal form.
Hours meter
Operation (hour)

Section 7
Spare Parts

7-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

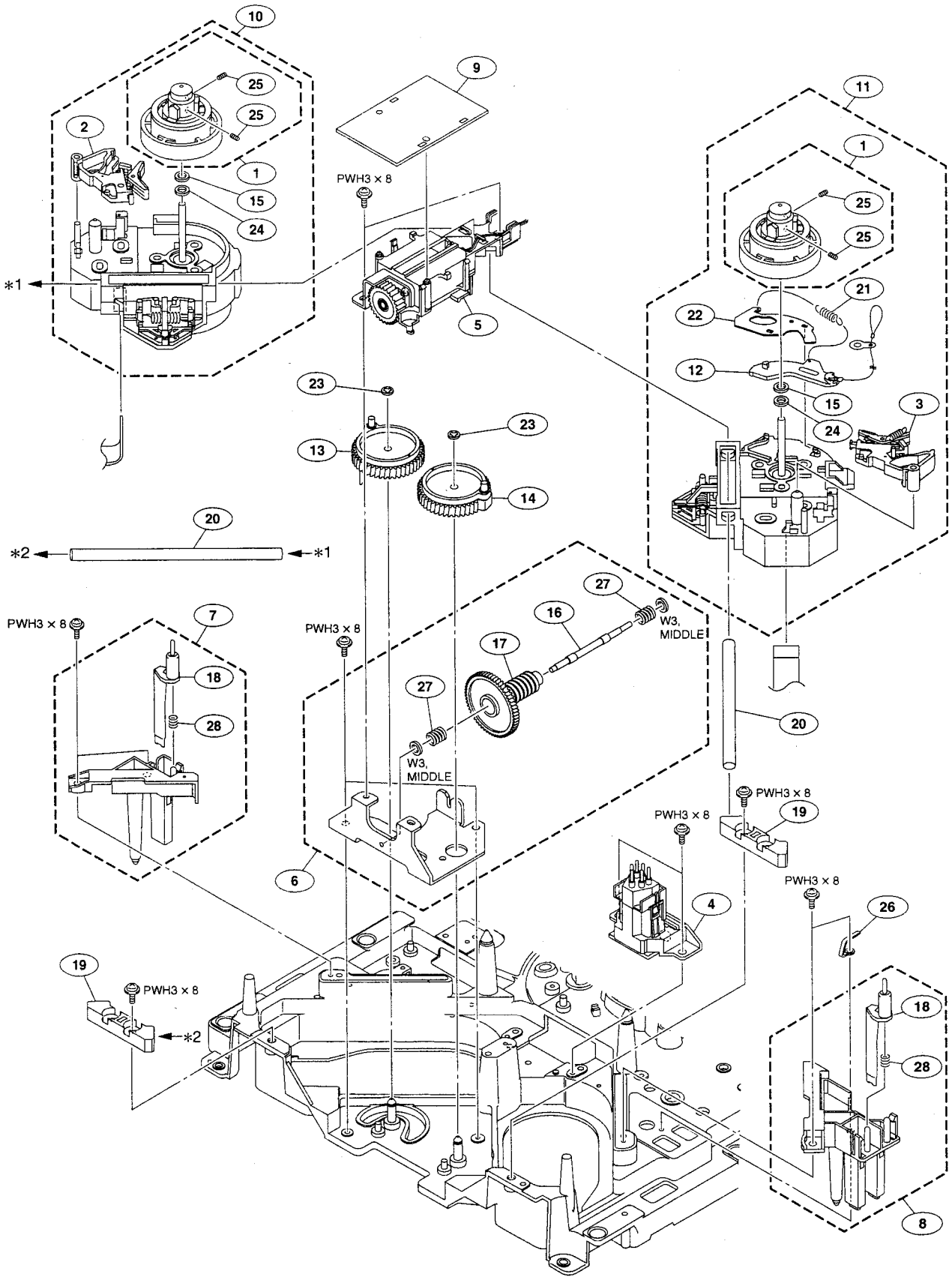
3. Stock of Parts

Parts marked with "o" at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

Harnesses with no part number are not registered as spare parts.
In need of repair, get components shown in the list and repair using them.

7-2. Exploded Views

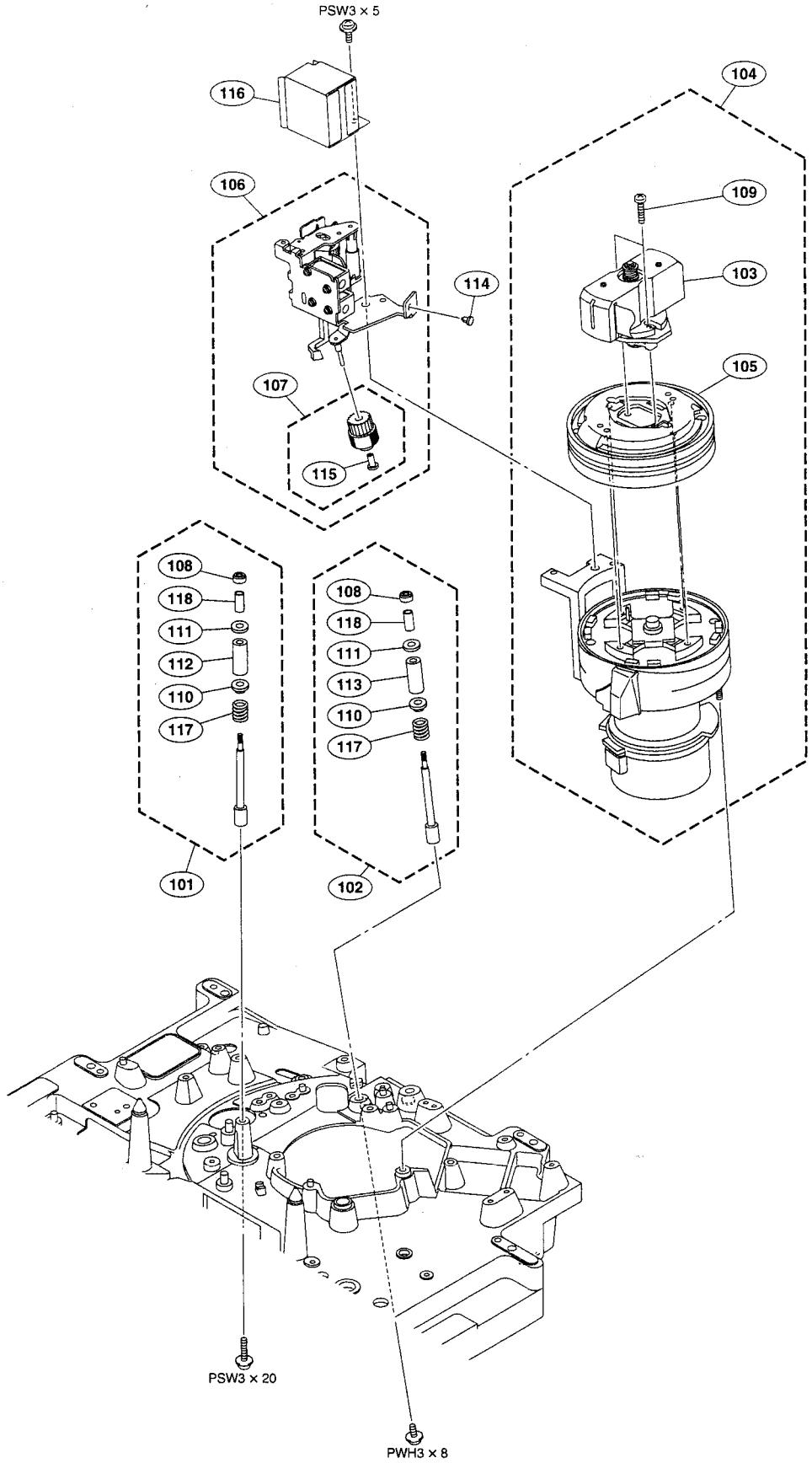


No.	Part No.	SP	Description
1	A-8279-279-A	o	TABLE ASSY,REEL
2	A-8279-280-B	o	BRAKE(S)ASSY
3	A-8279-281-B	o	BRAKE(T)ASSY
4	A-8279-282-A	s	SENSOR ASSY,MC
5	A-8279-283-A	s	HOLDER ASSY,MOTOR
6	A-8279-284-A	s	WORM ASSY
7	A-8279-285-A	s	HOLDER ASSY,PLATE(S)
8	A-8279-286-A	s	HOLDER ASSY,PLATE(T)
9	A-8324-811-A	o	MOUNTED CIRCUIT BOARD, SE-606
10	A-8326-889-A	s	RM BLOCK (S) ASSY
11	A-8326-890-A	s	RM BLOCK (T) ASSY
12	X-3605-770-3	o	WIRE ASSY
13	X-3605-771-2	o	GEAR(S)ASSY,DRIVING
14	X-3605-772-1	o	GEAR(T)ASSY,DRAIVING
15	3-188-108-01	s	SPACER(DIA. 4)(PLA)
16	3-624-950-01	o	SHAFT,WORM
17	3-624-951-01	o	GEAR,RELAY
18	3-624-952-01	o	LEVER,MR
19	3-624-953-01	s	HOLDER,SHAFT
20	3-624-954-01	s	SHAFT,SLIDE
21	3-624-965-01	o	ME,SPRING
22	3-624-969-01	o	RETAINER,ARM
23	3-650-537-01	o	WASHER
24	3-701-441-11	s	WASHER PLASTIC (4.1X0.25)
25	3-701-505-00	s	SET-SCREW,HEX 3X3 ST
26	3-701-822-01	s	HOLDER, WIRE
27	3-738-730-01	s	SPRING,COMPRESSION(COIL) (ST)
28	4-880-426-00	o	SPRING (STEEL)

Screw/Washer

Part No.	SP	Description
7-682-903-21	s	SCREW +PWH 3X8
7-688-003-01	s	WASHER W3 SMALL

Drum and W Cleaner Block

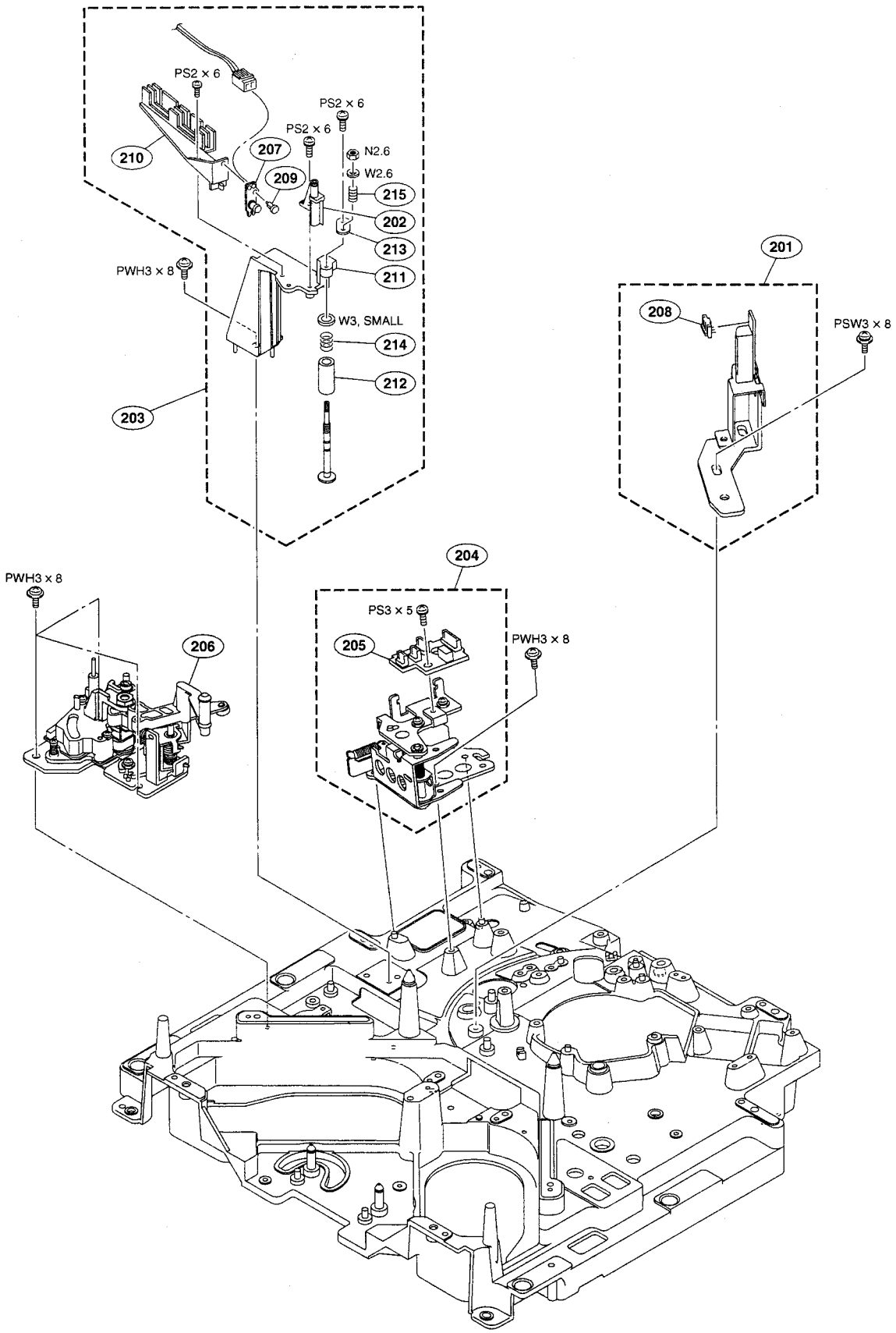


No.	Part No.	SP	Description
101	A-8279-288-A	o	TG-2 ASSY
102	A-8279-289-A	o	TG-3 ASSY
103	A-8312-151-B	s	BRUSH (SR4) ASSY (RP)
104	A-8324-482-A	s	DRUM DDH-58A-R
105	A-8324-483-A	s	UPPER DRUM DDR-58-R
106	A-8325-407-A	s	CLEANER ASSY, W(RP)
107	A-8325-415-A	s	CLEANER ASSY (RP)
108	2-203-519-21	s	NUT(A),LOCK,PIVOT (COPPER)
109	3-180-163-01	s	SCREW (2X16)
110	3-180-669-02	s	FLANGE,FIXED GUIDE USE
111	3-181-489-01	s	FLANGE,DIA.8
112	3-181-490-01	o	SLEEVE,DIA.7
113	3-181-491-01	o	SLEEVE, DIA. 6
114	3-531-576-01	s	RIVET,NYLON
115	3-625-203-02	s	CAP
116	3-625-204-01	o	SHIELD CASE
117	3-738-730-01	s	SPRING,COMPRESSION(COIL) (ST)
118	4-885-848-01	o	SPACER (DIA 3X8)

Screws

Part No.	SP	Description
7-682-903-21	s	SCREW +PWH 3X8
7-682-953-09	s	SCREW +PSW 3X20
7-682-961-01	s	SCREW +PSW 4X8

FE Head and S Tension Regulator Block

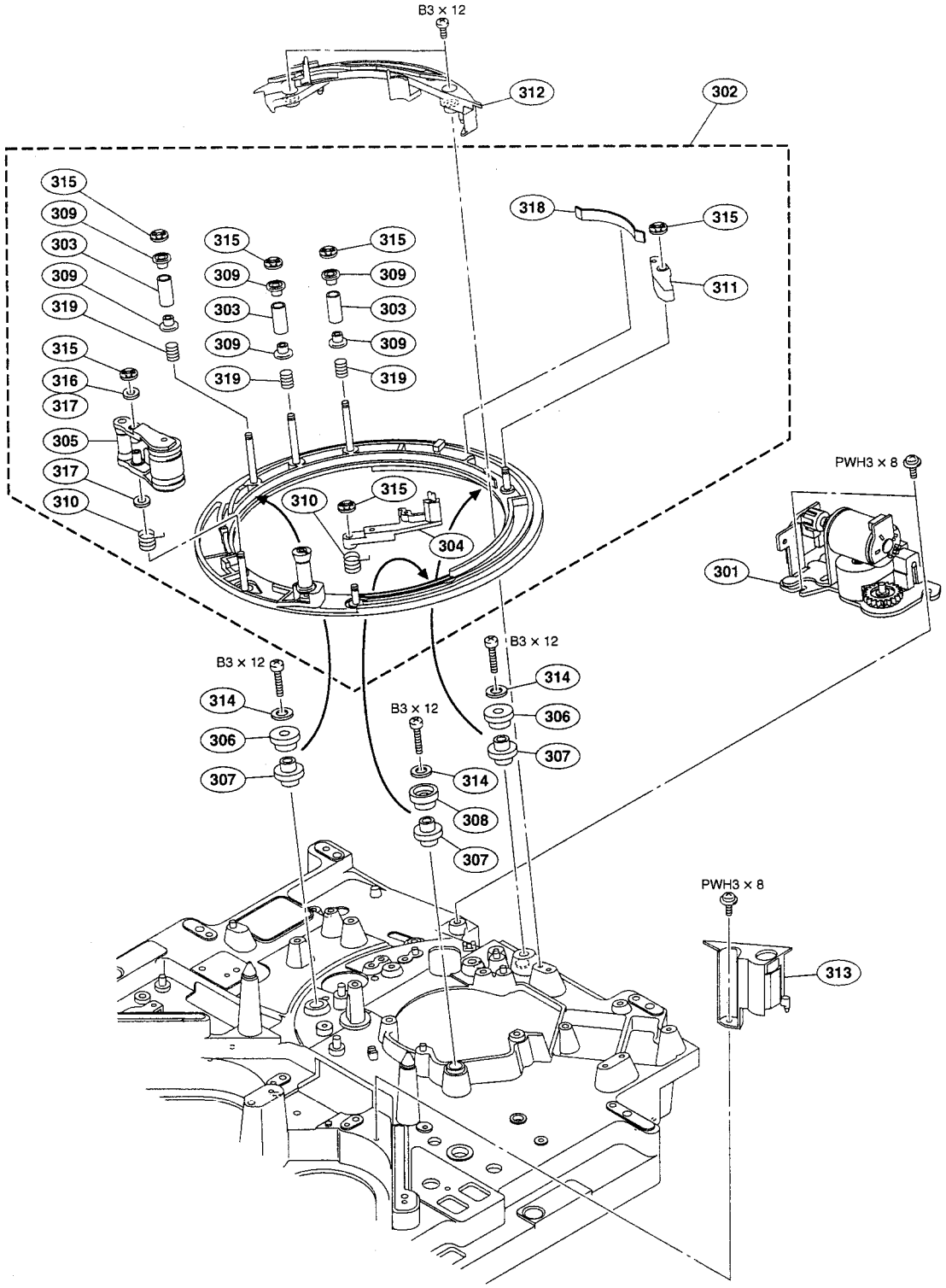


No.	Part No.	SP	Description
201	A-8265-530-D	s	HEAD ASSY, FE
202	A-8278-345-B	o	TURN BRADE ASSY
203	A-8279-383-A	o	PLATE ASSY,S
204	A-8324-938-A	s	PRESS ASSY, PINCH
205	A-8324-941-A	o	MOUNTED CIRCUIT BOARD,HN-268
206	A-8325-409-A	s	REGULATOR ASSY, S TENSION(RP)
207	1-543-316-31	s	HEAD, SENSING (SMALL TYPE)
208	1-564-013-11	o	PIN,CONNECTOR 3P
209	2-279-715-01	s	RIVET,NYLON
210	3-180-403-01	o	HOLDER,SENSOR
211	3-180-869-04	s	PLATE (S)
212	3-181-490-01	o	SLEEVE,DIA.7
213	3-183-823-01	o	BRACKET, GUIDE RETAINER
214	3-637-331-00	s	SPRING, COMPRESSION
215	3-669-316-01	s	SPRING,COMPRESSION

Screws/Washers

Part No.	SP	Description
7-622-207-05	s	NUT M2.6 TYPE2
7-628-253-20	s	SCREW +PS 2X6
7-682-646-09	s	SCREW +PS 3X5
7-682-903-21	s	SCREW +PWH 3X8
7-682-948-01	s	SCREW +PSW 3X8
7-688-002-11	s	WSHER 2.6(MID)
7-688-003-01	s	WASHER W3 SMALL

Threading Ring and Gear Box Block

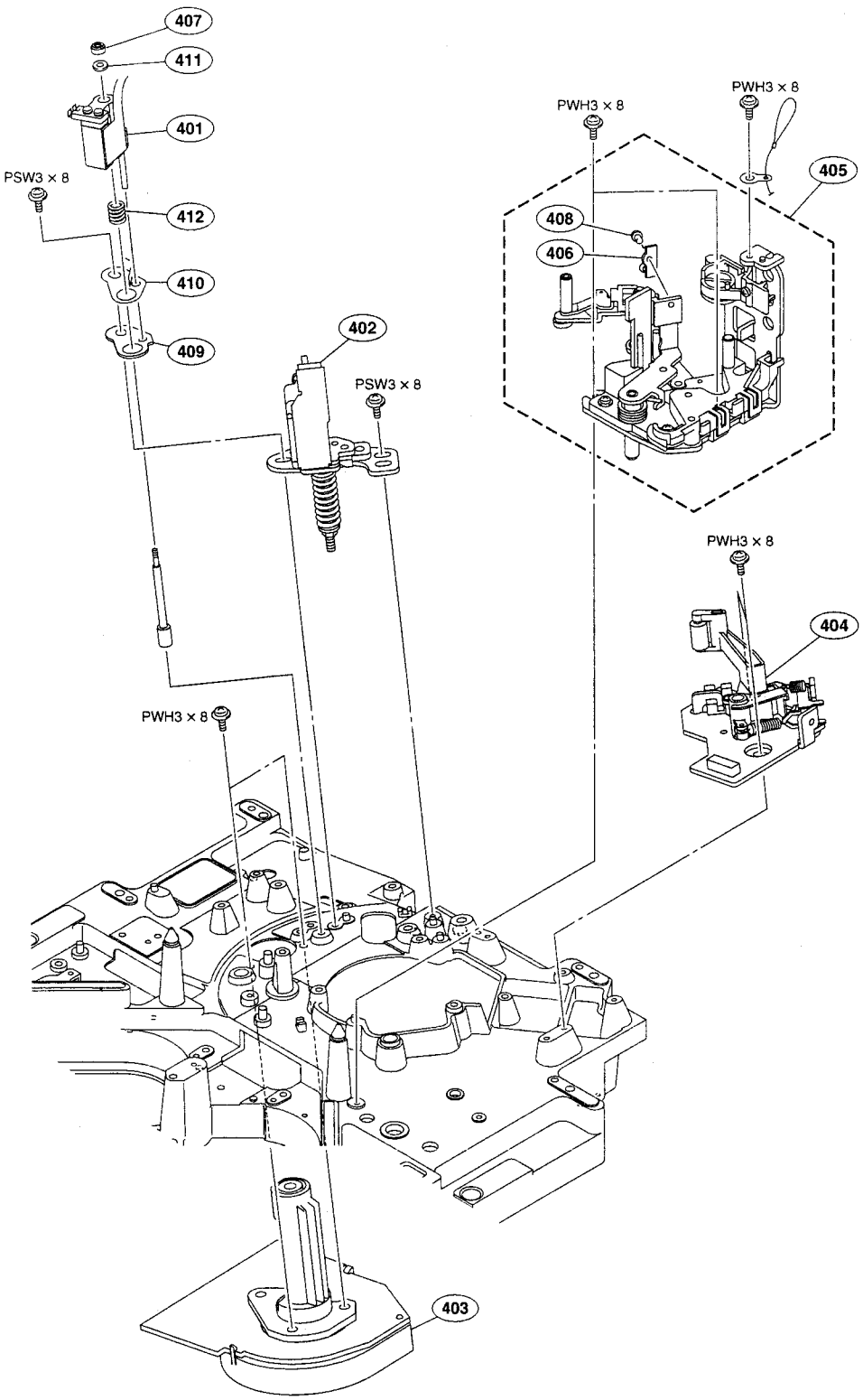


No.	Part No.	SP	Description	
301	A-8267-424-A	s	BOX ASSY, GEAR	
302	A-8325-446-B	s	RING ASSY, THREADING	
303	X-3167-052-2	s	ROLLER ASSY, ONEBARE	
304	X-3605-789-1	o	ARM ASSY,CL	
305	X-3605-881-1	s	ARM ASSY,PINCH	
306	3-180-677-01	s	ROLLER, RING	
307	3-180-678-01	s	SHAFT, RING ROLLER	
308	3-180-679-01	s	ROLLER, (B) RING	
309	3-180-773-02	s	FLANGE, ONEBARE USE	
310	3-180-849-01	s	SPRING (C), TORSION COIL	
311	3-180-850-01	s	ARM, LOCK	
312	3-624-986-01	s	RAIL,GUIDE,CL	
313	3-625-217-01	o	GUARD,PA	
314	3-650-537-01	o	WASHER	
315	3-669-596-00	s	WASHER,2.3	(PLA)
316	3-701-439-01	s	WASHER PLASTIC (3.1X0.13)	
317	3-701-439-11	s	WASHER PLASTIC (3.1X0.25)	
318	3-714-587-01	o	SPRING, LEAF	(STEEL)
319	4-879-563-00	s	SPRING	(STEEL)

Screws

Part No.	SP	Description
7-682-550-09	s	SCREW +B3X12
7-682-903-21	s	SCREW +PWH 3X8

Confi Head and T Drawer Block

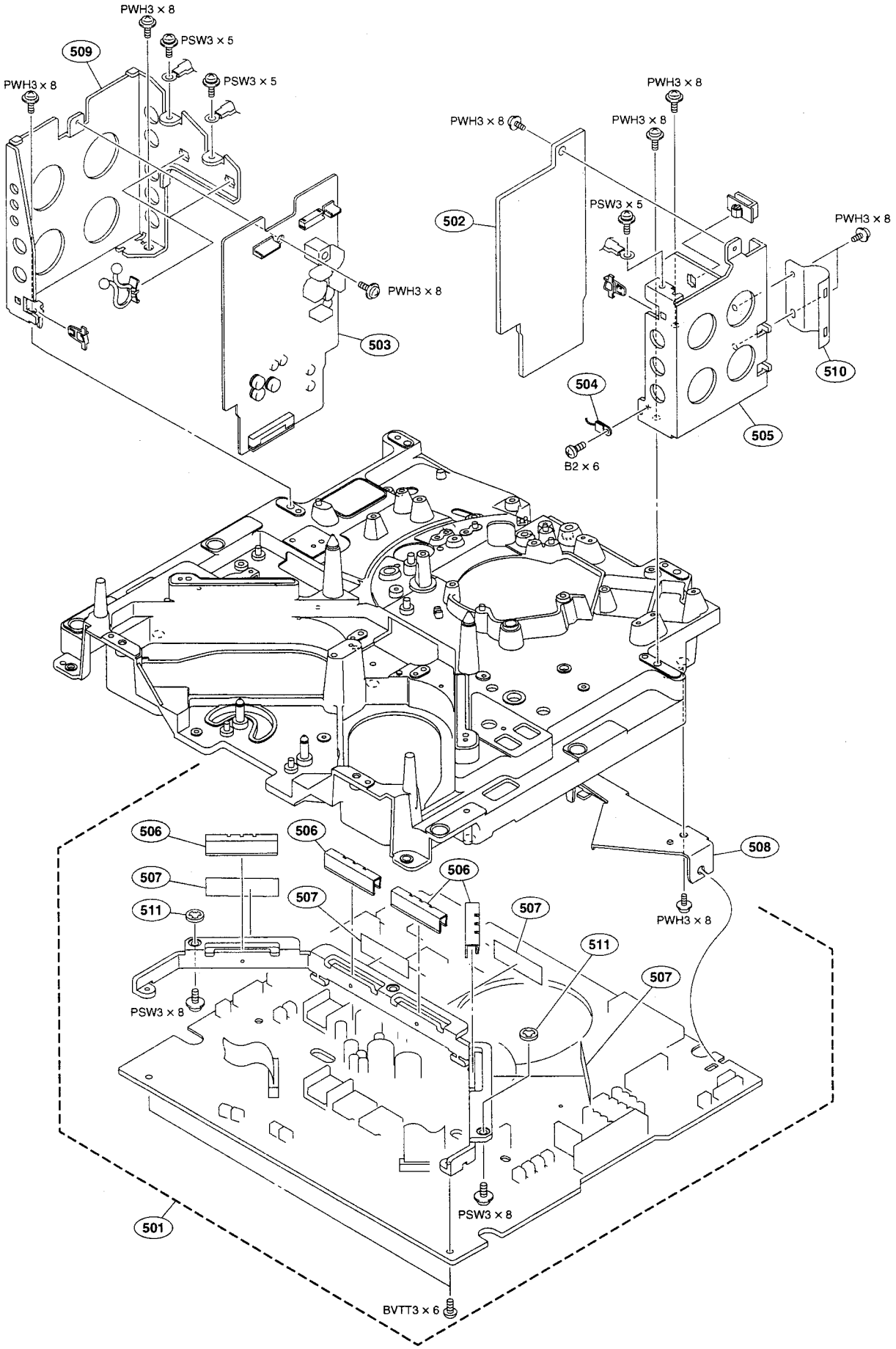


No.	Part No.	SP	Description
401	A-8324-935-B	o	HEAD ASSY, CONFI
402	A-8325-120-A	o	HEAD ASSY, AT
403	A-8325-190-A	s	MOTOR, CAPSTAN(RP)(SCV16/J-N)
404	A-8325-410-A	s	REGULATOR ASSY, T TENSION(RP)
405	A-8326-891-A	s	DRAWER ASSY, T(RP)
406	1-543-316-31	s	HEAD, SENSING (SMALL TYPE)
407	2-203-519-21	s	NUT(A),LOCK,PIVOT (COPPER)
408	2-279-715-01	s	RIVET,NYLON
409	3-625-265-01	o	HEAD BRACKET(2),CONFI
410	3-628-278-01	o	HEAD BRACKET, CONFI
411	3-701-439-01	s	WASHER PLASTIC (3.1X0.13)
412	3-738-730-01	s	SPRING,COMPRESSION(COIL) (ST)

Screws

Part No.	SP	Description
7-682-903-21	s	SCREW +PWH 3X8
7-682-948-01	s	SCREW +PSW 3X8

Printed Circuit Board Block

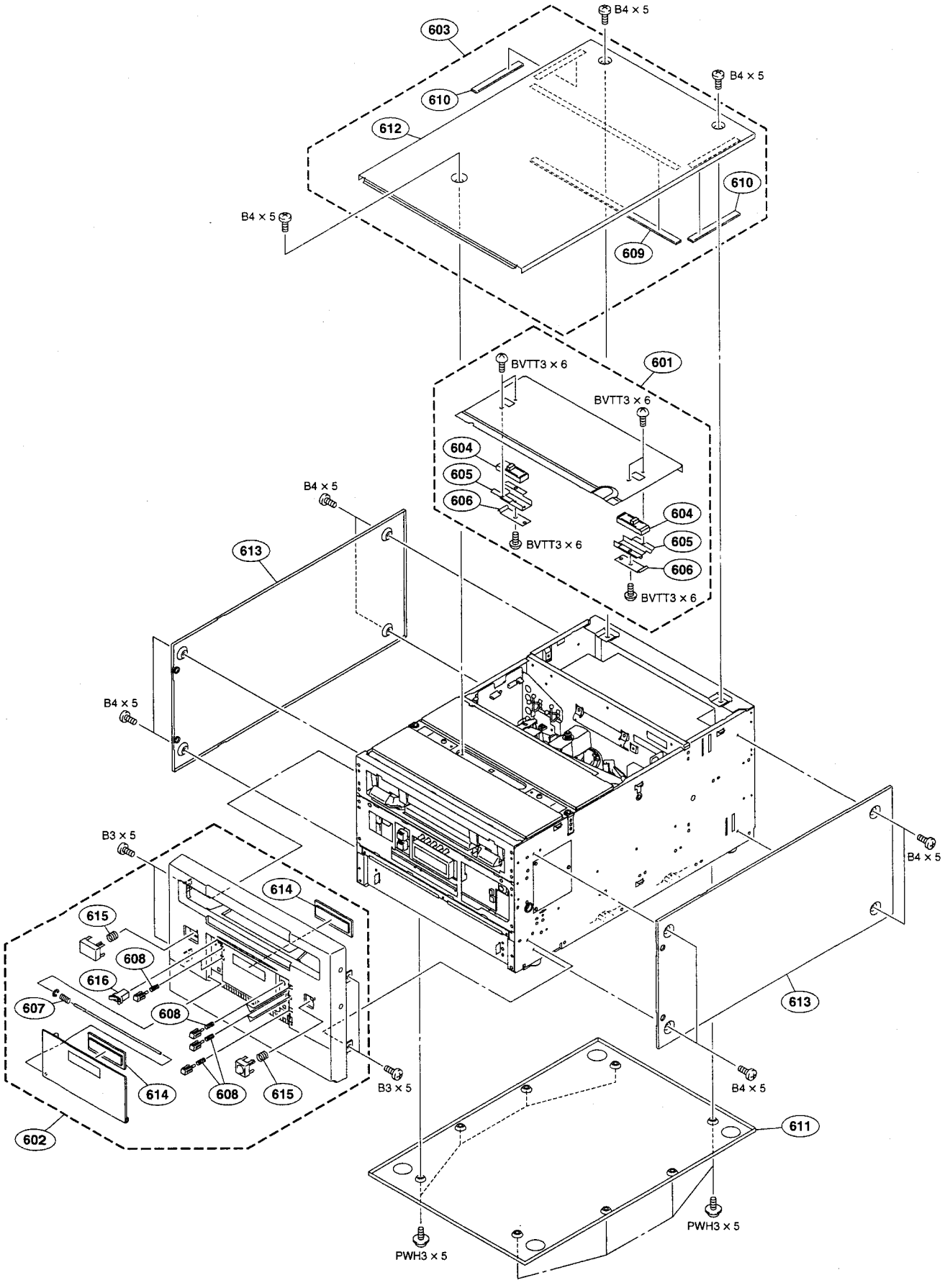


No.	Part No.	SP	Description	
501	A-8324-757-A	o	MOUNTED CIRCUIT BOARD, SV-205	
502	A-8324-758-A	o	MOUNTED CIRCUIT BOARD, HN-258	
503	A-8324-759-A	o	MOUNTED CIRCUIT BOARD, CT-205	
504	1-810-575-11	s	SENSOR, DEW CONDENSATION	
505	3-625-244-03	o	BRACKET(C)	
506	3-625-261-01	o	CLAMP,PT	
507	3-625-262-01	o	SHEET,RADIATION	
508	3-625-996-01	o	BRACKET(A)	
509	3-625-997-02	o	BRACKET(B)	
510	3-628-645-01	o	HARNESS,HOLDER	
511	3-669-596-00	s	WASHER,2.3	(PLA)

Screws

Part No.		SP	Description
512	7-621-772-30	s	SCREW +B2X6
513	7-682-903-21	s	SCREW +PWH 3X8
514	7-682-948-01	s	SCREW +PSW 3X8
515	7-685-871-01	s	SCREW BVTT 3X6

Ornamental Panel Block

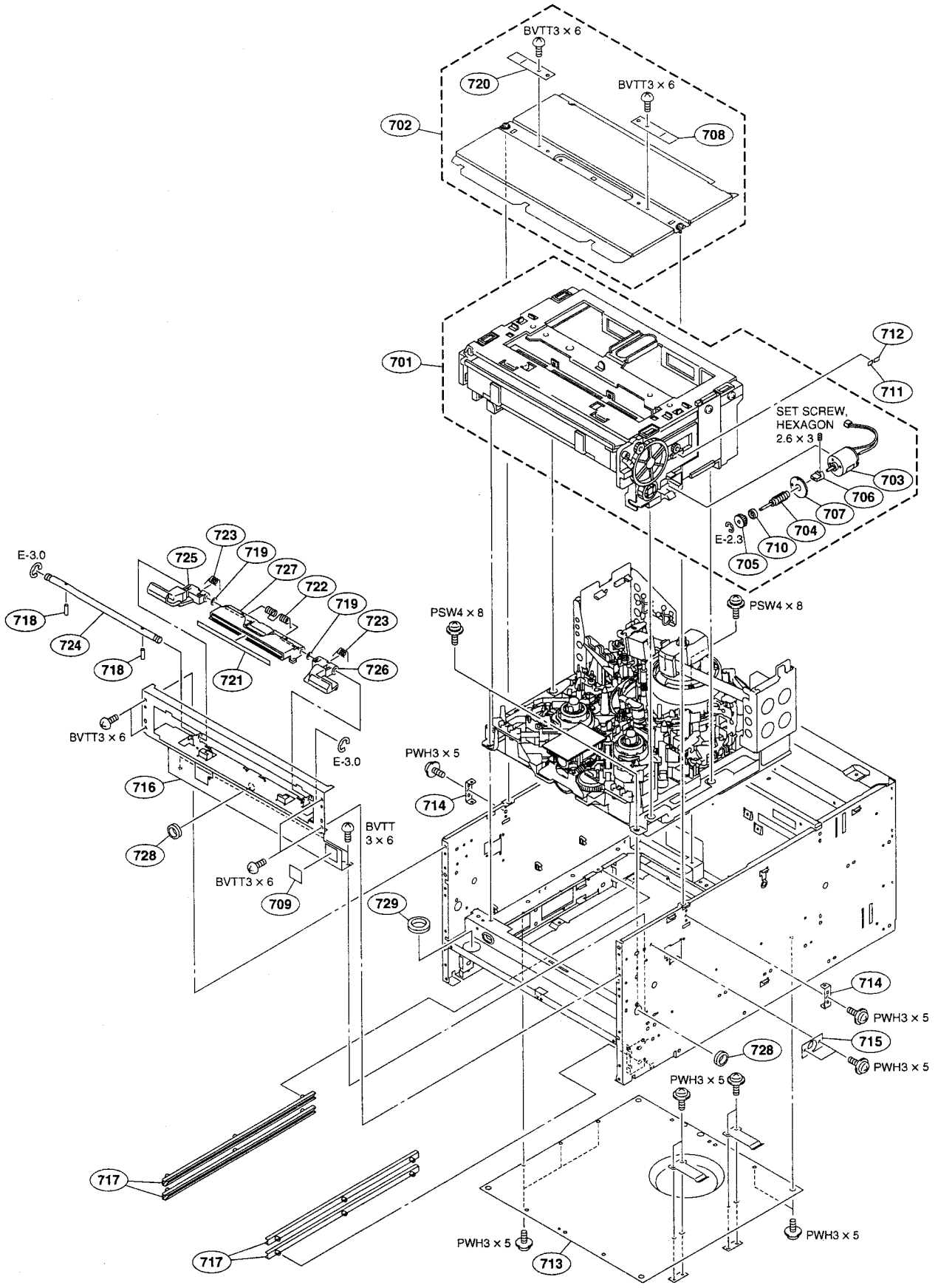


No.	Part No.	SP	Description	
601	A-8279-303-A	o	MD ASSY,ACOUSTIC ISOLATION	
602	A-8279-304-C	o	PANEL,FRONT ASSY	
603	A-8279-422-A	o	(GY)ASSY,TOP PLATE	
604	3-180-751-01	o	MD, SLIDER	
605	3-180-752-01	o	BRACKET, SLIDER	
606	3-180-753-03	o	MD, PLATE SPRING	
607	3-544-222-01	s	SPRING,COMPRESSION	(STEEL)
608	3-611-769-01	s	SPRING,COMPRESSION	
609	3-614-677-02	s	GASKET(RI)	
610	3-614-677-12	o	GASKET(RI)	
611	3-625-281-02	o	PLATE,BOTTOM	
612	3-625-282-01	o	PLATE,TOP	
613	3-625-283-01	o	PANEL,ORNAMENTAL	
614	3-625-314-01	o	LENS,LCD	
615	3-687-045-01	s	SPRING,COMPRESSION	
616	4-047-464-01	s	CATCHER,PUSH	(POM)

Screws

Part No.	SP	Description
7-682-546-04	s	SCREW +B3X5
7-682-559-04	s	SCREW +B4X5
7-682-903-01	s	SCREW +PWH 3X5
7-685-871-01	s	SCREW BVTT 3X6

SC Guide Panel and Cassette Compartment Block

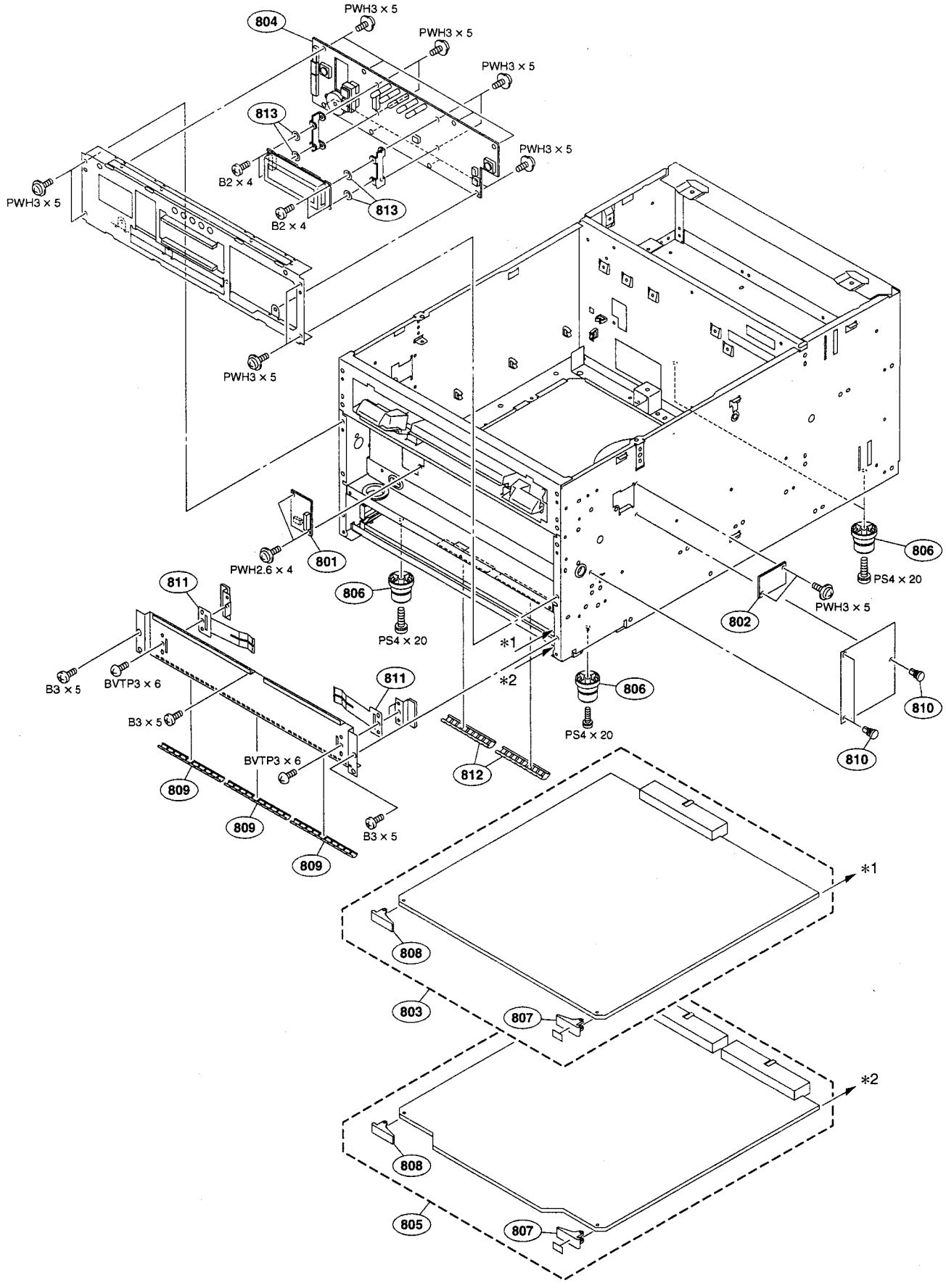


No.	Part No.	SP	Description	
701	A-8326-707-A	s	CASSETTE SVC	
702	A-8326-708-A	s	BRACKET ASSY	
703	1-698-152-11	s	MOTOR (SVD-1449), DC(4.4W)	
704	3-171-418-03	s	WORM	
705	3-171-419-11	s	WHEEL,GEAR	
706	3-171-423-02	o	JOINT, MOTOR	
707	3-182-706-01	s	SPACER	
708	3-182-786-01	o	SPRING, CASSETTE COMPARTMENT	
709	3-185-303-01	o	SEAL, EJECT	
710	3-188-745-01	s	BALL BEARING, NON-FLANGED	
711	3-625-258-01	o	LABEL	
712	3-625-259-01	o	LABEL	
713	3-625-293-03	o	PLATE SHIELD,MD	
714	3-625-294-01	o	BRACKET,CASSECON	
715	3-625-295-01	o	STOPPER,SCREW	
716	3-625-916-01	o	PANEL GUID,SC	
717	3-673-676-31	o	RAIL, PC BOARD GUIDE	
718	3-677-193-00	o	PIN,STOPPER	(STEEL)
719	3-701-441-21	s	WASHER PLASTIC (4.1X0.5)	
720	3-717-306-01	o	SPRING	(STEEL)
721	3-717-614-01	o	NAME PLATE, C-LOCK OUT	(AL)
722	3-717-615-01	o	SPRING	(STEEL)
723	3-717-616-01	s	SPRING	(STEEL)
724	3-717-617-01	o	SHAFT,SC GUIDE	
725	3-717-618-01	o	GUIDE(LEFT),SC	
726	3-717-619-02	o	GUIDE (RIGHT), SC	
727	3-717-620-01	o	PLATE,OUT,C-LOCK	
728	3-824-174-00	s	BUSHING, RUBBER	
729	4-928-322-01	o	BUSHING,RUBBER	

Screws/Washers

Part No.	SP	Description
7-621-734-09	s	SET-SCREW,HEX 2.6X3 (WP)
7-624-105-04	s	RING,E2.3
7-624-106-04	s	RING,RETAINING,E (3MM)
7-682-903-01	s	SCREW +PWH 3X5
7-682-961-01	s	SCREW +PSW 4X8
7-685-871-01	s	SCREW BVTT 3X6

DSP Panel and Printed Circuit Board Block

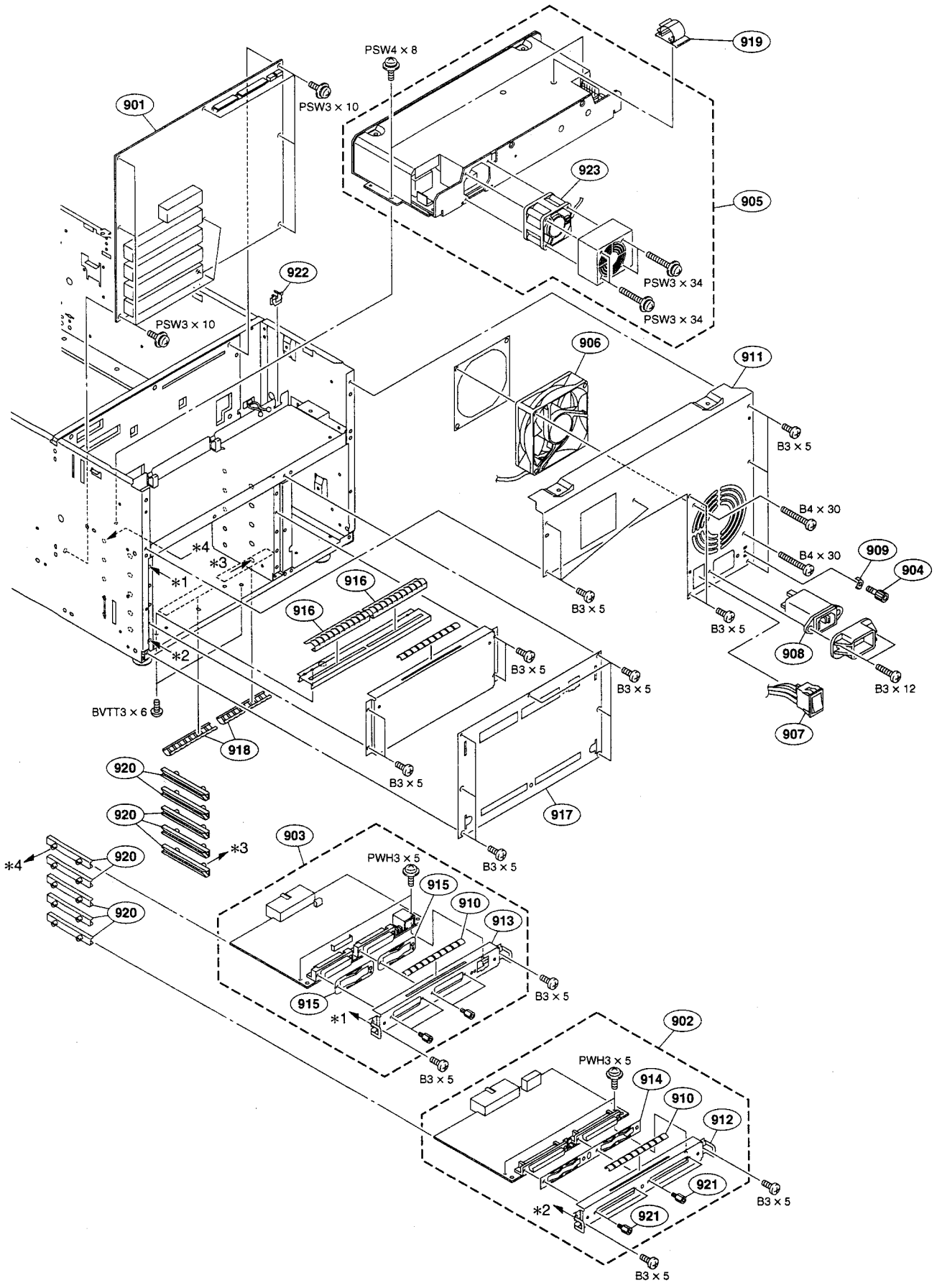


No.	Part No.	SP	Description
801	A-8320-064-A	o	MOUNTED CIRCUIT BOARD, CCM-33A
802	A-8324-756-A	o	MOUNTED CIRCUIT BOARD, SE-533
803	A-8324-762-A	o	MOUNTED CIRCUIT BOARD, DPR-160
804	A-8324-766-A	o	MOUNTED CIRCUIT BOARD, DSP-90
805	A-8324-805-A	o	MOUNTED CIRCUIT BOARD, FM-75
806	X-3605-849-1	s	FOOT ASSY,DRIVE
807	3-179-084-01	s	LEVER(R),PRINTED C,BOARD
808	3-179-085-01	s	LEVER(L),PRINTED C.BOARD
809	3-189-268-01	o	SPRING, SHIELD
810	3-531-576-01	s	RIVET,NYLON
811	3-626-874-01	o	SPRING,FM GND
812	3-628-642-01	o	SPRING,FCC(1)
813	3-701-437-11	s	WASHER PLASTIC (2.1X4X0.25)

Screws

Part No.	SP	Description
7-621-772-10	s	SCREW +B2X4
7-682-546-04	s	SCREW +B3X5
7-682-666-09	s	SCREW +PS 4X20
7-682-902-01	s	SCREW +PWH 2.6X4
7-682-903-01	s	SCREW +PWH 3X5
7-685-871-01	s	SCREW BVTT 3X6

Rear Panel and Switching Regulator Block



No.	Part No.	SP	Description
901	A-8324-763-A	o	MOUNTED CIRCUIT BOARD, MB-887
902	A-8324-764-A	o	MOUNTED CIRCUIT BOARD, SCS-28
903	A-8324-765-A	o	MOUNTED CIRCUIT BOARD, IF-780
904	X-2068-004-0	s	TERMINAL ASSY
905	⚠ 1-468-497-11	s	REGULATOR, SWITCHING
906	1-698-779-31	s	FAN, DC (80 SQUARE)
907	⚠ 1-762-300-11	s	SWITCH, AC POWER SEESAW
908	⚠ 1-794-177-11	s	INLET, AC (WITH FILTER)
909	2-068-008-00	s	WASHER
910	3-189-268-01	o	SPRING, SHIELD
911	3-625-274-01	o	PANEL,REAR
912	3-625-275-01	o	PANEL,SCSI
913	3-625-276-01	o	PANEL,IF
914	3-625-286-01	o	F EARTH(SCSI),PANEL
915	3-625-287-01	o	F EARTH(D-SUB),PANEL
916	3-625-291-01	o	SPRING,EARTLH L
917	3-625-298-01	o	(SCSI)PANEL SUB
918	3-628-642-01	o	SPRING,FCC(1)
919	3-659-922-01	o	CLAMPER,CORD
920	3-673-676-01	s	GUIDE RAIL,CHASSIS
921	3-682-469-01	o	SCREW FOR CONNECTOR
922	4-641-552-01	o	SADDLE, LOCK EDGE
923	9-885-001-66	s	FAN,D.C

Screws

Part No.	SP	Description
7-682-546-04	s	SCREW +B3X5
7-682-550-09	s	SCREW +B3X12
7-682-568-09	s	SCREW +B4X30
7-682-903-01	s	SCREW +PWH 3X5
7-682-949-01	s	SCREW +PSW 3X10
7-682-961-01	s	SCREW +PSW 4X8
7-685-871-01	s	SCREW BVTT 3X6

7-3. Electrical List

Part No. SP Description

A-8320-064-A o MOUNTED CIRCUIT BOARD, CCM-33A
A-8324-756-A o MOUNTED CIRCUIT BOARD, SE-533
A-8324-757-A o MOUNTED CIRCUIT BOARD, SV-205
A-8324-758-A o MOUNTED CIRCUIT BOARD, HN-258
A-8324-759-A o MOUNTED CIRCUIT BOARD, CT-205

A-8324-762-A o MOUNTED CIRCUIT BOARD, DPR-160
A-8324-763-A o MOUNTED CIRCUIT BOARD, MB-887
A-8324-764-A o MOUNTED CIRCUIT BOARD, SCS-28
A-8324-765-A o MOUNTED CIRCUIT BOARD, IF-780
A-8324-766-A o MOUNTED CIRCUIT BOARD, DSP-90

A-8324-805-A o MOUNTED CIRCUIT BOARD, FM-75
A-8324-811-A o MOUNTED CIRCUIT BOARD, SE-606

7-4. Frame List

Ref. No.
or Q'ty Part No. SP Description

HN001 1-948-962-12 o HARNESS (CC LAMP)
(FROM CN932/LP-81 BOARD TO CN931/CL-29 BOARD)

HN002 1-665-836-11 s PC BOARD, CL-41 FLEXIBLE
(FROM CN934/PC-70 BOARD TO CN933/CL-29 BOARD)

HN003 1-960-455-12 o HARNESS, SUB (LOADING)
(FROM CN233/HN-268 BOARD TO CN920/CCM-15 BOARD, CN904/
PTC-54 BOARD)

HN004 1-960-340-11 o HARNESS, SUB (CASS)
(FROM CN930/CL-29 BOARD TO CN21/SV-205 BOARD)

HN005 1-960-361-11 o HARNESS, SUB (CTL/TC)
(TO CN1/CT-205 BOARD)
1pc 1-580-585-11 o HOUSING, CONNECTOR 18P
4pcs 1-573-176-11 o TERMINAL, SOLDERLESS
7pcs 1-580-599-11 o TERMINAL, SOLDERLESS
(TO CN910/R/P HEAD)
1pcs 1-580-585-11 o HOUSING, CONNECTOR 18P
4pcs 1-573-176-11 o TERMINAL, SOLDERLESS
7pcs 1-580-599-11 o TERMINAL, SOLDERLESS

HN006 1-960-362-11 o HARNESS, SUB (FULL ERASE)
(TO CN3/CT-205 BOARD)
1pc 1-569-196-11 o HOUSING, CONNECTOR 3P
3pcs 1-569-193-21 o TERMINAL, SOLDERLESS
(TO CN911/FULL ERASE HEAD)
1pc 1-569-196-11 o HOUSING, CONNECTOR 3P
3pcs 1-569-193-21 o TERMINAL, SOLDERLESS

HN007 1-677-117-11 o PWB, FL-282 FLEXIBLE PRINT
(FROM CN2/CT-205 BOARD TO MONI HEAD)

HN008 1-960-346-12 o HARNESS, SUB (TOP)
(FROM CN1/TAPE TOP SENSOR TO CN20/SV-205 BOARD)

HN009 1-960-345-11 o HARNESS, SUB (END)
(FROM CN1/TAPE END SENSOR TO CN4/SV-205 BOARD)

HN010 ---- HARNESS, SUB (HN)
(TO CN18/SV-205 BOARD)
1pc 1-580-595-11 o HOUSING, CONNECTOR 38P
38pcs 1-580-599-11 o TERMINAL, SOLDERLESS
(TO CN1/HN-258 BOARD)
1pc 1-580-595-11 o HOUSING, CONNECTOR 38P
38pcs 1-580-599-11 o TERMINAL, SOLDERLESS

HN011 1-667-116-11 s PWB, FL-281 FLEXIBLE PRINT
(FROM CN1/S_REEL MOTOR TO CN16/SV-205 BOARD)

HN012 1-667-116-11 s PWB, FL-281 FLEXIBLE PRINT
(FROM CN1/T_REEL MOTOR TO CN17/SV-205 BOARD)

HN013 ---- HARNESS, SUB (DRUM DRIVE)
(TO CN15/SV-205 BOARD)
1pc 1-580-587-11 o HOUSING, CONNECTOR 22P
6pcs 1-573-176-11 o TERMINAL, SOLDERLESS
16pcs 1-580-599-11 o TERMINAL, SOLDERLESS
(TO DRUM (DDH-58A-R))
1pc 1-580-587-11 o HOUSING, CONNECTOR 22P
6pcs 1-573-176-11 o TERMINAL, SOLDERLESS
16pcs 1-580-599-11 o TERMINAL, SOLDERLESS

Ref. No. or Q'ty	Part No.	SP	Description
HN014	1-960-360-12	o	HARNESS, SUB (RF)
	(TO DRUM (DDH-58A-R))		
2pcs	1-580-583-11	o	HOUSING, CONNECTOR 14P
2pcs	1-580-584-11	o	HOUSING, CONNECTOR 16P
9pcs	1-573-176-11	o	TERMINAL, SOLDERLESS
20pcs	1-580-599-11	o	TERMINAL, SOLDERLESS
	(TO CN1, 2/MB-887 BOARD)		
2pcs	1-580-582-11	o	HOUSING, CONNECTOR 12P
2pcs	1-580-586-11	o	HOUSING, CONNECTOR 20P
10pcs	1-573-176-11	o	TERMINAL, SOLDERLESS
20pcs	1-580-599-11	o	TERMINAL, SOLDERLESS
HN015	1-960-337-12	o	HARNESS, SUB (MB/SV)
	(FROM CN22/SV-205 BOARD TO CN606/MB-887 BOARD)		
HN016	1-960-351-12	o	HARNESS, SUB (POWER SV)
	(TO CN11/SV-205 BOARD)		
1pc	1-562-800-11	o	HOUSING, CONNECTOR 9P
9pcs	1-562-210-11	s	CONTACT, CONNECTOR
	(TO CN503/MB-887 BOARD)		
1pc	1-562-800-11	o	HOUSING, CONNECTOR 9P
9pcs	1-562-210-11	s	CONTACT, CONNECTOR
HN017	1-960-348-11	o	HARNESS, SUB (REMOTE)
	(FROM CN602/MB-887 BOARD TO CN104/SWITCHING REGULATOR)		
HN018	1-960-350-11	o	HARNESS, SUB (POWER 8P)
	(TO CN604/MB-887 BOARD)		
8pcs	1-562-210-11	s	CONTACT, CONNECTOR
	(TO CN102/SWITCHING REGULATOR)		
8pcs	1-562-210-11	s	CONTACT, CONNECTOR
HN019	1-960-349-11	o	HARNESS, SUB (POWER 10P)
	(TO CN605/MB-887 BOARD)		
1pc	1-563-888-11	s	HOUSING, CONNECTOR 10P
10pcs	1-562-210-11	s	CONTACT, CONNECTOR
	(TO CN101/SWITCHING REGULATOR)		
1pc	1-563-888-11	s	HOUSING, CONNECTOR 10P
10pcs	1-562-210-11	s	CONTACT, CONNECTOR
HN020	----		HARNESS, SUB (DSP-LCD)
	(FROM CN202/DSP-90 BOARD TO LCD)		
1pc	1-569-195-11	o	HOUSING, CONNECTOR 2P
2pcs	1-569-193-21	o	TERMINAL, SOLDERLESS
HN021	----		HARNESS (AC IN GY)
	(TO CN1/SWITCHING REGULATOR)		
1pc	1-562-285-11	o	HOUSING, CONNECTOR 4P
2pcs ⚠	1-562-210-11	s	CONTACT, CONNECTOR
	(TO POWER SW)		
1pc ⚠	1-762-300-11	s	SWITCH, AC POWER SEESAW
	(TO AC INLET WITH NOISE FILTER)		
2pcs	1-565-788-11	o	HOUSING, CONNECTOR
2pcs ⚠	1-565-787-11	o	CONTACT, RECEPTACLE 1P
1pc ⚠	1-794-177-11	s	INLET, AC (WITH FILTER)
HN022	----		HARNESS (AC-GND)
	(FROM AC INLET WITH NOISE FILTER TO CHASSIS)		
1pc ⚠	1-565-788-11	o	HOUSING, CONNECTOR
1pc ⚠	1-537-568-11	o	TERMINAL, GROUND
1pc	1-565-787-11	o	CONTACT, RECEPTACLE 1P
HN023	1-792-453-11	s	WIRE, FLAT TYPE (4 CORE)
	(FROM CN1/CCM-33A BOARD TO CN1/SE-606 BOARD)		
FAN1	1-698-779-31	s	FAN, DC (80 SQUARE)
FAN2	9-885-001-66	s	FAN, D.C.
H1	A-8267-422-B	s	HEAD ASSY, AT "R/P HEAD"
H2	A-8265-530-D	s	HEAD ASSY, FE "FULL ERASE HEAD"
H3	A-8324-935-A	o	HEAD ASSY, CONFI "MONI HEAD"

Ref. No. or Q'ty	Part No.	SP	Description
M1	1-698-152-12	s	MOTOR (SVD-1449) , DC (4.4W) "CAS U/D MOTOR"
M2	1-698-152-12	s	MOTOR, DC (SVD-1449) "LOADING MOTOR"
M3	1-698-152-22	s	MOTOR, DC (SVD-1449) "REEL SHIFT MOTOR"
M4	A-8325-190-A	s	SCV16A/J-RP "CAPSTAN MOTOR"
M5	A-8324-482-A	s	DDH-58A-R "DRUM (DDH-58A-R)"
SE1	1-810-575-11	s	SENSOR, DEW CONDENSATION "DEW SENSOR"
SE2	1-543-316-32	s	HEAD, SENSING (SMALL TYPE) "TAPE TOP SENSOR"
SE3	1-543-316-32	s	HEAD, SENSING (SMALL TYPE) "TAPE END SENSOR"

7-5. Supplied Accessories List

Part No.	SP	Description
1-774-818-11	o	CONNECTOR, SQUARE TYPE (SCSI-3)

7-6. Optional Fixtures List

Part No.	SP	Description
J-6035-070-A	o	EXTRACTION TOOL (for PLCC socket)
J-6080-029-A	o	SMALL DENTAL MIRROR (Round type)
J-6086-570-A	o	REFERENCE FLAT PLATE
J-6152-450-A	o	WIRE CLEARNCE CHECK GAUGE SET
J-6190-800-A	o	TENSION REGULATOR SLANTNESS CHECK TOOL
J-6251-090-A	o	TORQUE SCREWDRIVER'S HEXAGONAL BIT (d=2.5 mm, l=120 mm)
J-6323-440-A	o	TORQUE SCREWDRIVER'S HEXAGONAL BIT (d=0.89 mm, l=50 mm)
J-6323-500-A	o	TORQUE SCREWDRIVER'S HEXAGONAL BIT (d=2 mm, l=75 mm)
J-6323-420-A	o	TORQUE SCREWDRIVER'S BIT (+2 mm, l=75 mm)
J-6323-430-A	o	TORQUE SCREWDRIVER'S BIT (+3 mm, l=90 mm)
J-6252-510-A	o	TORQUE SCREWDRIVER (6 kg.cm)
J-6252-520-A	o	TORQUE SCREWDRIVER (12 kg.cm)
J-6320-880-A	o	CASSETTE REFERENCE PLATE (L)
J-6322-610-A	o	TAPE GUIDE ADJUSTMENT DRIVER
J-6329-350-A	o	REELTABLE HEIGHT GAUGE
3-184-527-01	o	CLEANING CLOTH (15 cm x 15 cm)
7-432-114-11	o	LOCKING COMPOUND, 1401B (200 g)
7-661-018-18	o	DIAMOND OIL, NT-68 (50 ml)
7-651-000-10	o	SONY GREASE, SGL-601 (50 g)
7-700-736-01	o	L-SHAPED HEXAGONAL WRENCH (d=1.27 mm)
7-700-736-03	o	L-SHAPED HEXAGONAL WRENCH (d=2 mm)
7-700-736-05	o	L-SHAPED HEXAGONAL WRENCH (d=1.5 mm)
7-700-766-04	o	L-SHAPED HEXAGONAL WRENCH (d=2.5 mm)
8-960-074-31	o	ALIGNMENT TAPE, YR5-1A
8-960-074-32	o	ALIGNMENT TAPE, YR2-1A
9-911-053-00	o	THICKNESS GAUGE
9-919-573-01	o	CLEANING LIQUID

Section 8
Block Diagram and Frame Wiring

8-1. Circuits Descriptions

- Refer to the block diagram in section 8-2 at the same time.

FM-75 board:

On the FM-75 board, the CPU (IC101) for controlling the data transmission and the CPU (IC118) for controlling the system are mounted. As flash ROMs are used for these CPUs, their firmware can be updated without changing ROMs.

The main functions of the CPU for controlling the data (hereunder it is called FMT CPU) are as follows.

- Control of the SCSI controller (SCS-28 board)
- Control of the data compression
- Control of the buffer memory
- Control of the file and table
- Transmission between the IF CPU and SYS CPU through the DP-RAM
- Self-diagnosis

(1) SCSI CMD system:

The command controls the SCSI controller (IC11) on the SCS-28 board by being transferred on the bus from the FMT CPU through the bus master IC (IC1) and its control IC (IC4).

(2) SCSI DATA system:

The data is transferred on the bus through the bus master IC (IC15) and its control IC (IC19), and temporarily stored in the DATA STORE SRAM (IC20 to IC24). After that, via the compression chip (IC26) it is sent to the BANK CONTROL IC (IC30). The BANK CONTROL IC controls the buffer memory comprising the ten 64M SDRAM and transmits/ receives the data to/ from the DPR-160 board. The data is added the sub code by the FMT CPU in every ID and stored in the buffer memory. The I/O bus width of the buffer memory is 80 bit (DATA 64 bit parity 16 bit). Logically this buffer memory is divided into eight banks.

On the other hand, the CPU for controlling the system (IC118 SYS CPU) performs the following controls.

- Transmission between this CPU and the IF CPU, FMT CPU, servo CPU via the DP-RAM
- Control of writing/reading the time code.
- Timing control of writing/reading the tape
- Retry control of writing/reading the data
- Self-diagnosis

DPR-160 board:

(1) ECC encoder (IC12-20)

The ECC encoder mainly adds the error correction code to the data, and after adding, performs the data shuffling.

The data in the buffer memory on the FM-75 board is sent to the ECC encoder (IC12-20 C1/C2 ENCODER) block, where the double error correction code Reed-Solomon is added.

The ECC encoder block performs the followings as well.

- Addition of the C2 error correction code
  The 27-byte C2 error correction (parity) code is added to the 77-byte data.
- After adding the C2 error correction code, the data shuffling called as interleave between the tracks is performed. The method of the interleave between the tracks is deeply related to the correction ability of the correction code, and when reading out the data from a tape, even if the one track of data error is detected, C2 correction circuit can return the data.
- Addition of the SYNC BLOCK-ID
- Addition of the C1 error correction code
  The 12-byte error correction code is added to the 192-byte data.
- Randomization
  All data is dispersed as the pseudo random data.

(2) Word interleave

The data is shuffled as a unit consisting of four C1 error correction codes. Ever if a successive error of a maximum of 20 bytes arises, by this operation, the error is divided into four C1 error correction codes (each 5 bytes), so that the data can be returned by the C1 error correction code.

(3) ECC decoder (IC40-68)

In the ECC decoder block, the sync block segment is output with the channel coding decoder and the following processing are carried out.

- Reverse word interleave
- Inverted reverse randomization
- C1 error correction
- Reverse track interleave
- C2 error correction

C1 error correction can correct the error of maximum of 5 bytes in a sync block, and the C2 error correction can correct the error of a maximum of 26 bytes. Moreover, to increase the reliability, the successive check is performed in the decode side (the process of the reverse interleave and randomization) and in the block side except the error segment.

(4) Channel coding encoder

The word interleave processed data is converted from 8-bit data to 9-bit data, and the first 4-byte signal of the sync block is also added. To distinguish a long bit string comprising 0 and 1, the tape record signal is converted from 8 bits to 9 bits, which can improve the reliability of the record function.

(5) Channel coding decoder

To detect the sync signal in this block, the sync block segments are classified according to the data. After that, the signal is converted from 9 to 8 bits (the reverse conversion from 8 to 9 bits), and the single 8-bit unit is returned.

(6) Read/Write circuit

The serial signal from the channel coding encoder (IC12) is converted by the signal processing of the partial response Class 4 (PR (1, 0, −1)) and pre-coded. This signal is sent to the write amplifier and is written on a tape.

The output signal from the read head is amplified by the read amplifier and is converted to the digital data after shaping the waveform by the equalizer, and is decoded by the partial response Class 4 (PR (1, 0, −1)), then is sent to the channel coding decoder.

SV-205 board:

The SV-205 board controls operations of motors and plungers according to the command of SYS CPU and information from the various sensors, and it transmits necessary information to the SYS CPU.

Main functions are as follows.

- Control of the drum motor phase
- Control of the speed by the T reel motor and control of the T-side tension
- Control of the S-side tension by the S reel motor
- Control of the capstan motor speed
- CTL tracking, auto tracking (ATF, SAT)
- Controls of the cassette compartment, threading, reel shift mechanism
- Generation of the record CTL
- Hours meter
- Plunger control of the reel brake, pinch roller and cleaning roller
- Automatic adjustment, self-diagnosis

This board comprises the two CPUs (IC814 SV-1, IC902 SV-2) combined by the high-speed serial transmission, the IC (IC805) for PLL control, the motor driver and the external flash memory.

The SV-1 CPU mainly processes the capstan motor control, auto tracking, SYS interface and auto adjustment. The transmission between the SV1 CPU and the SYS CPU (IC118) on the FM-75 board is performed through the common memory on the FM-75 board.

The SV-2 CPU mainly plays a role in processing the various sensors, controlling the reel motor, measuring the drum motor rotary phase, controlling the cassette compartment, threading, reel shift mechanism, plunger, and generating the record CTL.

Transmission between the SV-1 CPU and SV-2 CPU is performed by the high-speed transmission.

The IC for PLL control (IC805) controls the speed of the drum motor and capstan motor.

On the external flash memory, the adjustment data and error log are stored.
The firmware is stored on the flash memory incorporated in the SV-1 and SV-2 CPUs.

CT-205 board:

The CT-205 board interfaces between the CPU (IC814, IC902) on the SV-205 board/ the SYS CPU (IC118) on the FM-75 board and the longitudinal head and transmits the longitudinal track information.

Main functions are as follows.

- CTL record/playback amplification
- CTL CONFI amplification
- Time code record/playback amplification
- Time code CONFI amplification
- Full erase oscillation circuit
- Channel (CTL, TC) erase oscillation circuit

IF-780 board:

The IF-780 board is a 32-bit multi bus master circuit. The bus master comprises the CPU (IC11) and NIC (IC13), and as the bus arbiter, the one incorporated in the CPU is used.

The peripheral devices connected to the buses are as follows.

(1) FLASH ROM (IC15)

This stores the CPU starting program and the firmware. 512kB.

(2) SDRAM (IC23, 24)

This is the main memory of the CPU and contains a 16MB capacity by 64M bitx2.

(3) SRAM (IC17, 19, 43,44)

This is backed up by the capacitor and used for the system log storage and for the common memory between the CPU and NIC. It contains the 2MB capacity by 4M bitx4 and uses each 1MB for the log and the common memory.

(4) NVRAM (IC12)

This is a nonvolatile memory for storing the system information. 8kB.

(5) IOC (IC1)

This controls five UART, the LED for debug, and the parallel ports.
Each UART incorporates a 32-byte FIFO, and supports the simultaneous communications of the maximum 38.4 kbps for each chancel by polling in every 5mS.

(6) MBC (IC9)

The IF bus is connected to a DPRAM on other CPU board through the MB-887. The MBC opens/closes the MB-887 boundary buffer and gives/receives the control signal between the DPRAM and the CPU. As the MBC also plays a role in controlling the interruption, it masks the individual interrupt signal from each device and encodes the signal so as to be distinguished by the CPU.

(7) ETHC (IC10)

This is a glue-logic in order to match the CPU with the NIC control signal.

(8) NIC (IC13)

This is the network interface controller (NIC) corresponding to 10Base/T. It normally receives the register access from the CPU as a slave. According as the setting, when the data transmission between the network and the CPU is required, it controls the internal FIFO and turns to be the bus master, and it controls the SRAM of the common memory between the network and the CPU.

DSP-90 board:

The DSP-90 board controls the LCD, LED and switches on the front panel. This board can operate by receiving the control command or the status sense command from the IF-780 board.

Main functions are as follows.

- Control of LCD display
- Acceptance of inputting the command by the switches on the front panel
- Control of front panel LED display
- Control of the buzzer sound
- Sense of the cassette sensor status
- Control of memory label I/F

SCS-28 board:

The SCS-28 board interfaces between the SCSI Fast-20 Differential Wide and the bus.
When booting, the firmware is transmitted from the FMT CPU to the SCSI/PCI IF (IC11) through the bus and this IC11 controls the SCSI bus. The IC11 transmits the SCSI command sent from the host to the FMT CPU and transfers the data to the FM-75 board through the bus.

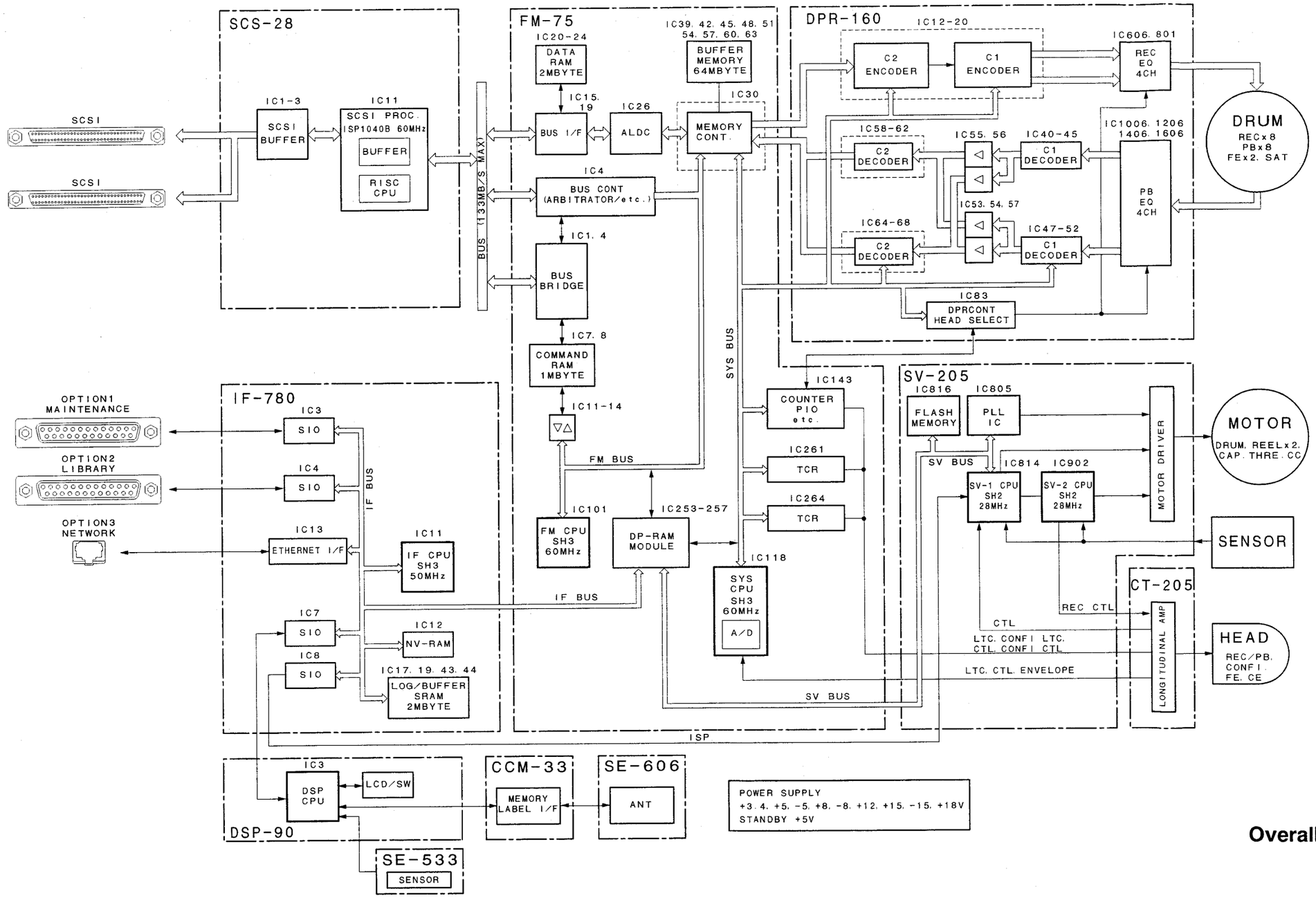
CCM-33 and SE-606 boards:

The CCM-33 and SE-606 boards constitute the Tele-File system.
Tile-File system is the communication system using non-contact memory. By using this system, the data such as file information and others of the cassette tape can read and write from/to the Tile-File Memory Label pasted on the backside of the cassette tape.
The CCM-33 board controls the Tile-File system.
The SE-606 board is the antenna board, and this board reads and writes the communication data between CCM-33 board and Tele-File Memory Label.

SE-533 board:

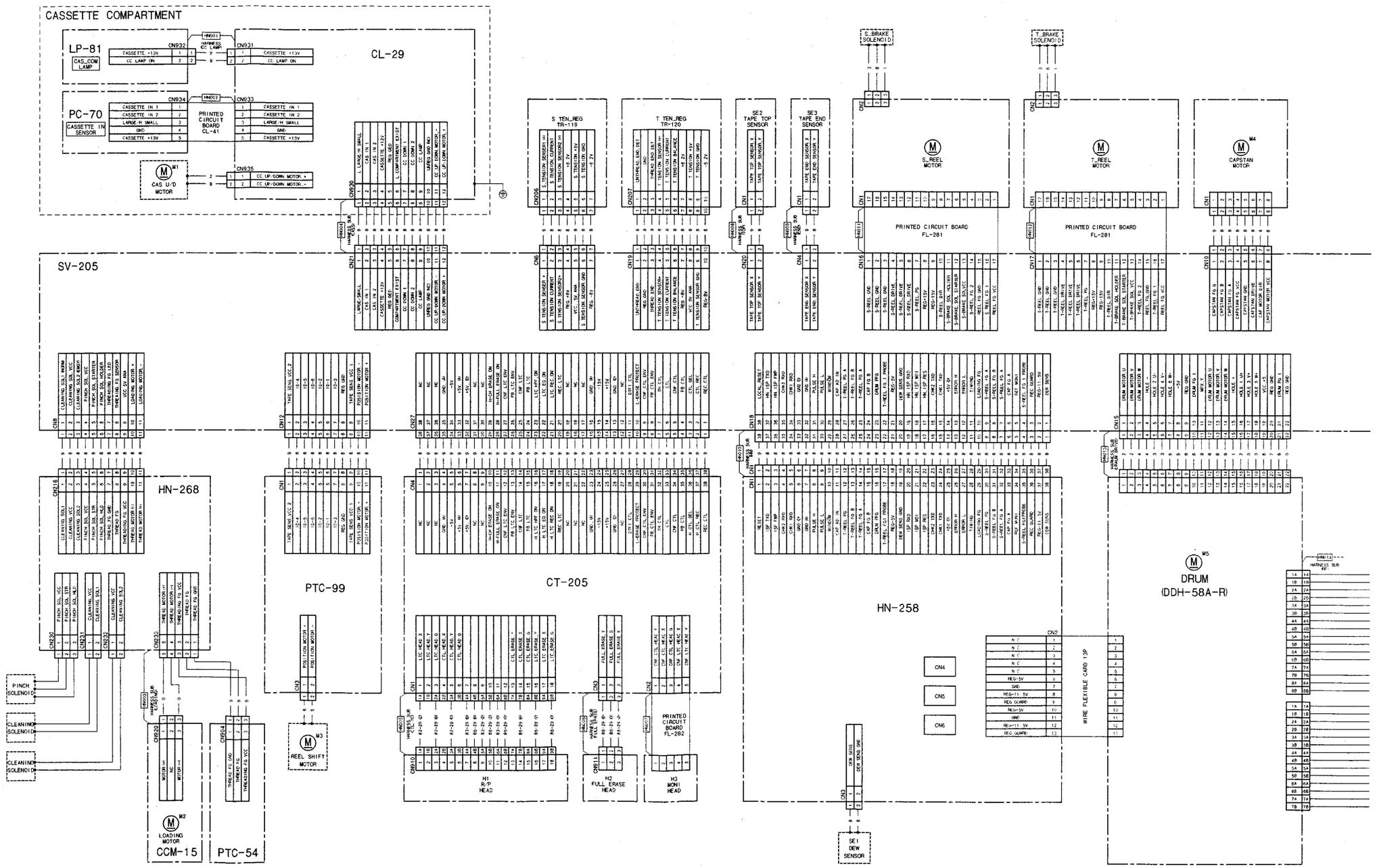
The SE-533 board detects that the cassette tape exists or not in the cassette compartment at the cassette compartment is up state.
This detection is performed by detecting the front lid of the cassette compartment is opened state or not.

8-2. Block Diagram

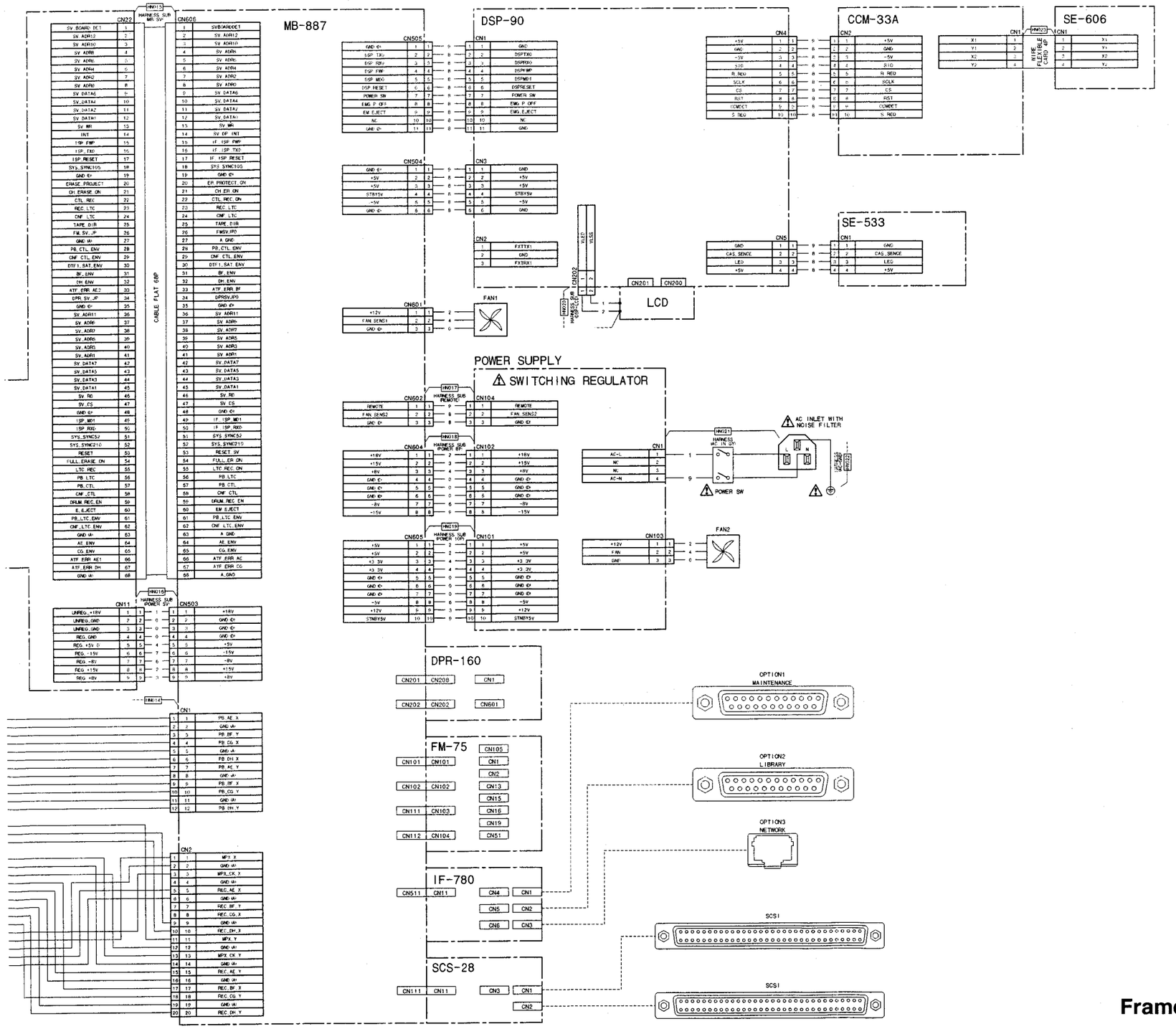


Overall

8-3. Frame Wiring



GY-8240UWD


MB-887
DSP-90
CCM-33A
SE-606
SE-533
LCD
FAN1
POWER SUPPLY
SWITCHING REGULATOR
AC INLET WITH NOISE FILTER
POWER SW
FAN2
DPR-160
FM-75
IF-780
SCS-28
OPTION1 MAINTENANCE
OPTION2 LIBRARY
OPTION3 NETWORK
SCSI
SCSI
CABLE FLAT 68P

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For the U.S.A. and Canada

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20 V AC range are suitable. (See Fig. A)

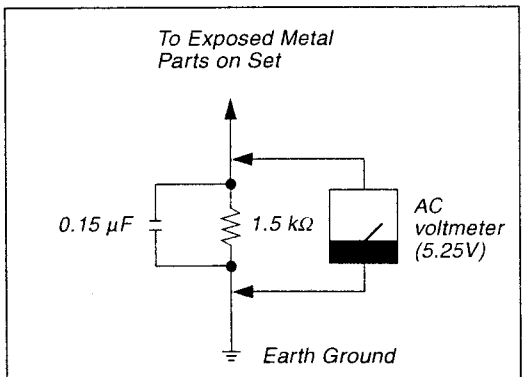


Fig A. Using an AC voltmeter to check AC leakage.